

A SCHOOL FOR 'IN-BETWEENERS'

An in-between architectural typology to education and economy through reviewing the opportunities within the Westbury community.

Pastel hues.
Pinks and Blues. Arches of colour.
Yellows and pinks.
Arch after arch.

Streets filled.
Filled with feet. Feet that move.
Feet in seat.
Feet standing bare.

Balconies filled.
Filled with clothes. Filled with eyes.
Filled with dreams.
Dreams and highs.
Faces filled.
Filled with glare. Glares of pride.
Glares of despair.

- Author, 2018
Westbury, Johannesburg

The 'in-betweeners'
Dowling Avenue
Westbury, Johannesburg
Photo by Author, July 2018



hello...

my name is alexia kolatsis.

13203012

beyond this page
lies my final exploration
as a student of architecture
at the university of pretoria.

welcome to my thoughts
and passions.

welcome to westbury.



It most certainly took an army.

Thank you.
Thank you.
Thank you.

Boukunde, and all your beautiful 'boukinders' - lecturers and fellow students alike.

Marguerite, for fuelling my fire, pushing my limits and guiding me through every step of this process.

Local Studio, for the inspiration, the friendships and the unending helping hands.

Mom, Dad + Dom, for sharing my stress, helping carry my workload and celebrating my accomplishments. I wouldn't have made it without you.

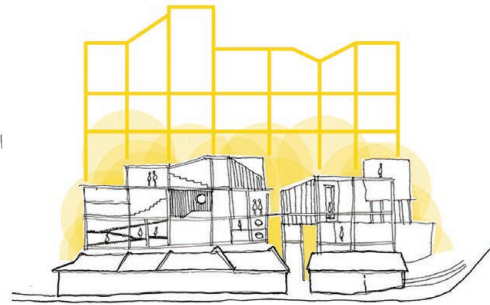
Natalie, my fellow soldier. We made it through the war.

Amy, for being my personal cheerleader, an unwavering helping hand and a golden soul.

Tuliza, for the passionate, evocative and inspirational conversations that have framed my views.

Dieter, for being a master model-builder and even better company in the darkest days.

Every person I met on this journey, for shaping the destination and inspiring the reignition of a passion I had long lost.



abstract

This dissertation, constituted from a juncture within our educational landscape, one that has particularly come to light under the banner of #FeesMustFall, postulates the role of an educational facility and its resultant typology. It explores an alternative education as being both didactic and economic.

It is self-evident, that our current South African institutional models give a matrix of 'what not to do' through their existence as insular pockets within their respective urban fabrics. These institutions have abrasive urban interfaces that give little to the production of a socially conscious learning environment, especially not one in which the context and surrounding community is absorbed and considered.

The search for a new typology thus lies in the in-between — the mediation between context and institution.

This basic need exists as one of the highest expenditure items on the country's budget, with South Africa spending a higher proportion of its budget on public education than both the United Kingdom and United States of America (Cohen, 2017). Despite this, there still remains fissures within our scarred educational landscape — 'gaps' that need to be filled.

The implications of this skewed education system are still deeply prevalent. They are evidenced by retention rates as well as dropout rates recorded in high schools and universities. Nationally, a report released by Statistics South Africa (2016), places high school dropout rates at 44,6% of the population (Lehohla, 2016). In Gauteng, the rate is at 40,5%, just below the national average. Compounding this, in a report conducted by the *Council on Higher Education: A proposal for undergraduate curriculum reform in South Africa, 2013*, it is said that 55% of students across all institutions are estimated never to graduate (Council on Higher Education, 2013, p. 45).

Compounding this is the interplay of school drop-outs — a phenomenon that plagues multiple communities throughout our context, particularly those with a history of injustices.

It is these school leavers that this dissertation seeks to address.

DECLARATION

In accordance with Regulation 4[e] of the General Regulations [G.57] for dissertations and theses, I declare that this thesis, which is hereby submitted for the degree Masters of Architecture (Professional) at the University of Pretoria, is my own work and has not previously been submitted by me for a degree at this or any other tertiary institution.

I further state that no part of my thesis has already been, or is currently being, submitted for any such degree, diploma or any other qualification.

I further declare that this thesis is substantially my own work. Where reference is made to the works of others, the extent to which that work has been used is indicated and fully acknowledged in the text and list of references.

ALEXIA KOLATSIS

13203012

2018

STUDY LEADER

Marguerite Pienaar

YEAR CO-ORDINATOR

Prof. Arthur Barker

RESEARCH FIELDS

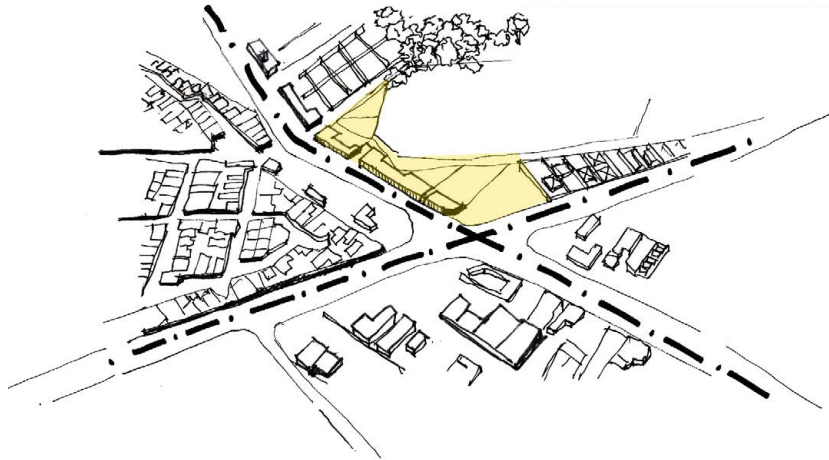
Human Settlements and Urbanism,
Heritage and Cultural Landscapes

PROJECT FUNCTION

A combined place of learning for the 'in-between' ages and Digital Communications Office

PROJECT LOCATION

Corner Main and Perth Road,
Westbury, Johannesburg



-26.185820
27.983610

GENERAL POTENTIAL

A space for higher learning is to be an environment for changing and testing society. It needs to be a system in constant flux.

If the spatial thinking of these environments of learning is evidently not centered on the society which it is to serve, how can any change in the South African educational landscape occur?

URBAN POTENTIAL

South African institutions speak of a history of exclusion and sit as insular pockets within the urban fabric that contribute little to their exterior, social interface.

Therefore, there needs to be a mediation between campus and city in which inclusivity and social involvement thrive. Perhaps it is at this point of mediation that the scars on our educational landscape begin to be healed.

ARCHITECTURAL POTENTIAL

The current school of thought assimilated with the infrastructure of educational facilities needs to serve as a basis for critique in the thinking of a new educational typology.

Currently, our context's priority is founded on providing the most basic provision of school infrastructure in order to meet demands. The quantitative therefore far outweighs the qualitative where a project's success is measured on how quickly and cost-efficiently it can be implemented.

THEORETICAL PREMISE

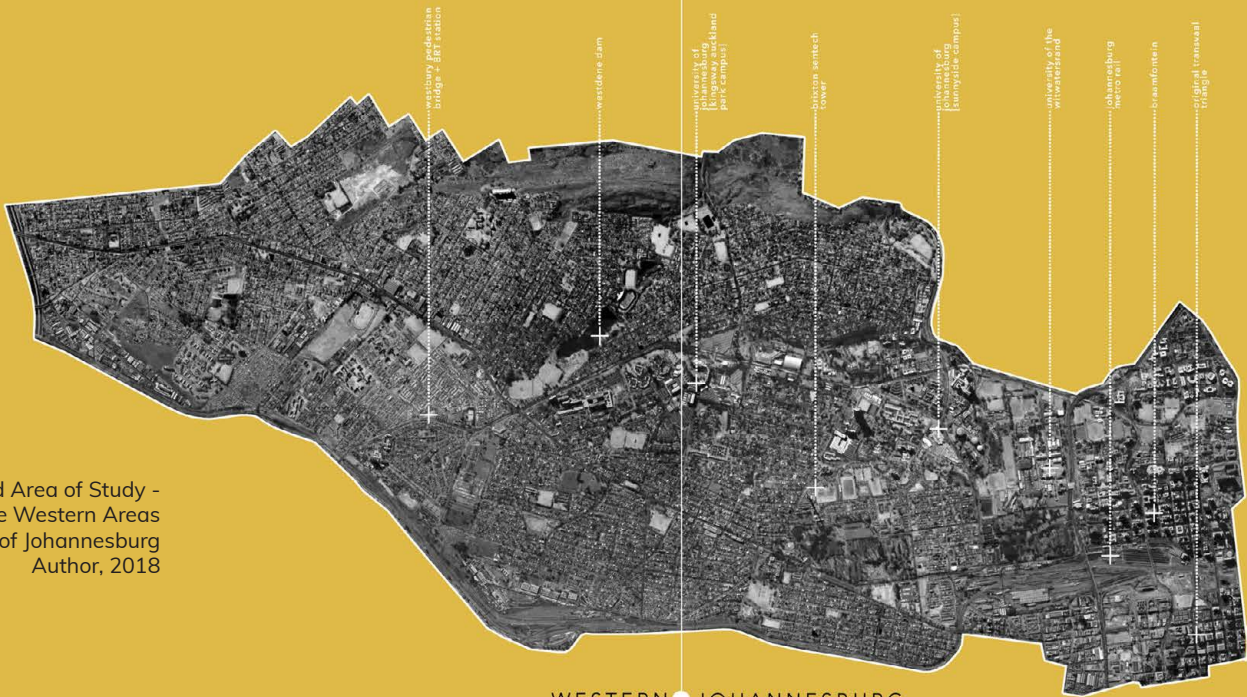
As a contextual response, the site of the project speaks to theories of spatial justice. This is owing to the nature of the suburb's coming into being as well as its current state. In a spatial realm, the site is read as a confluence of the suburb's urban fabric. This synthesis addresses theories and principles of mat-building which informs both the design and tectonics of the architecture.

CLIENT

The Department of Higher Education and Training (DHET) in conjunction with Rand Merchant Bank (RMB)

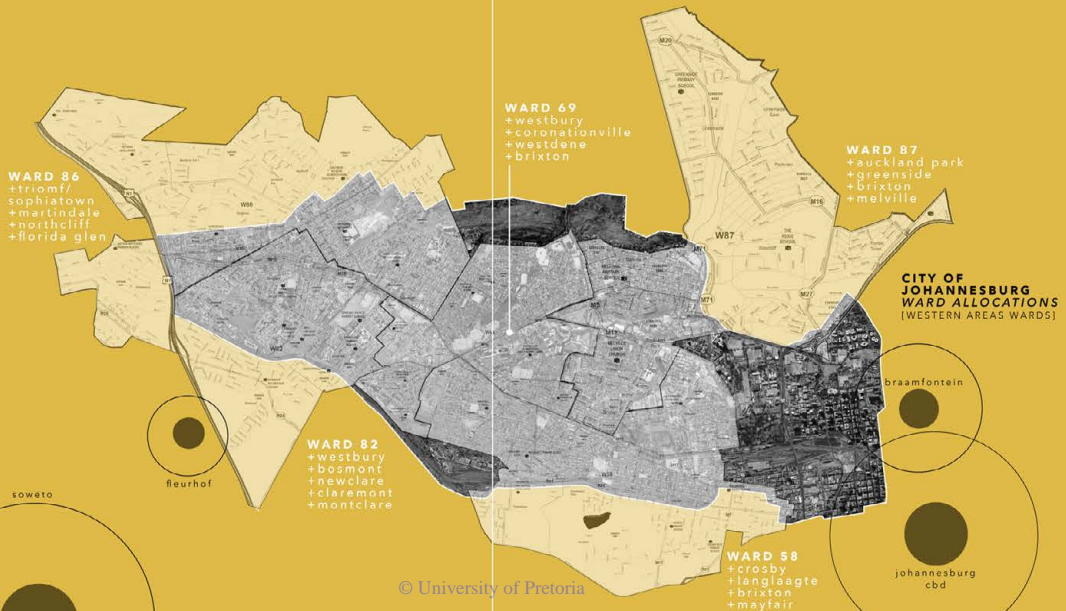


JOHANNESBURG



Broad Area of Study -
The Western Areas
of Johannesburg
Author, 2018

WESTERN JOHANNESBURG



Locating the Broad
Area of Study
in Johannesburg
Author, 2018

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O R I G I N / / O U T L I N E

This chapter outlines the components of the document that form the basis of the argument.

These components give the project's intention and propose the direction of the research that is to be undertaken.

These guides - users, research questions, potential topics - are to be understood as the anchor points to the scheme and will therefore shape decisions and iterations in order to achieve an appropriate response to the research questions posed within this chapter.

This chapter further addresses terminology commonly referred to in the context of this document and acts as a preliminary think-piece.



01

- ORIGIN -

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1.1 introduction

A school for 'In-Betweeners' constitutes a juncture in our South African education system — one that has particularly come to light over the past three years under the banner of #FeesMustFall. At its foundation, this movement reviews the multi-faceted notion of access to education as the fundamental offense of tertiary institutions within our context.

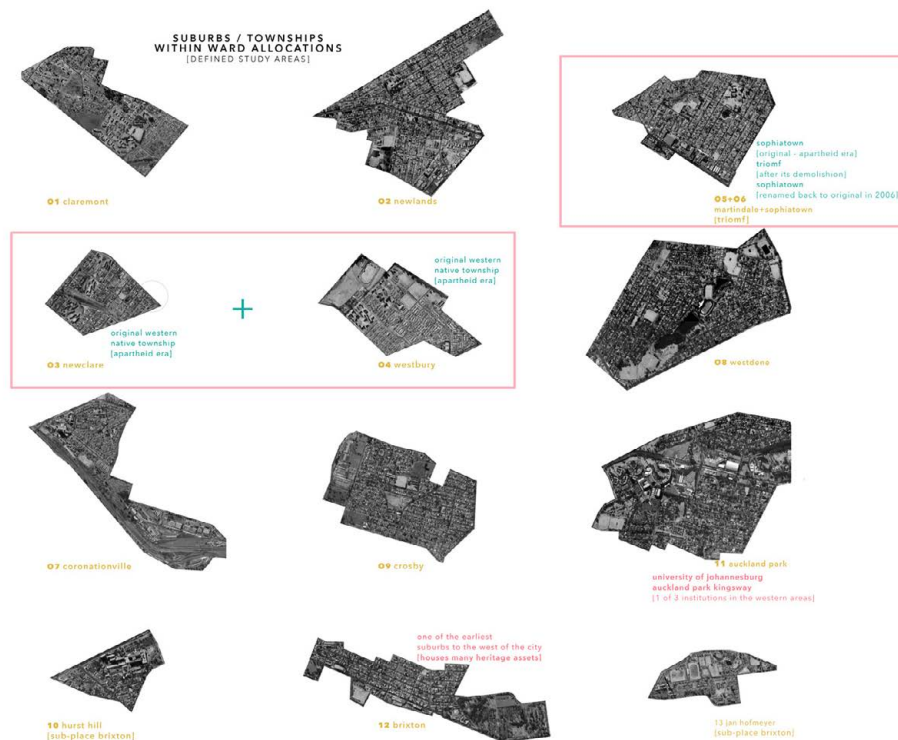
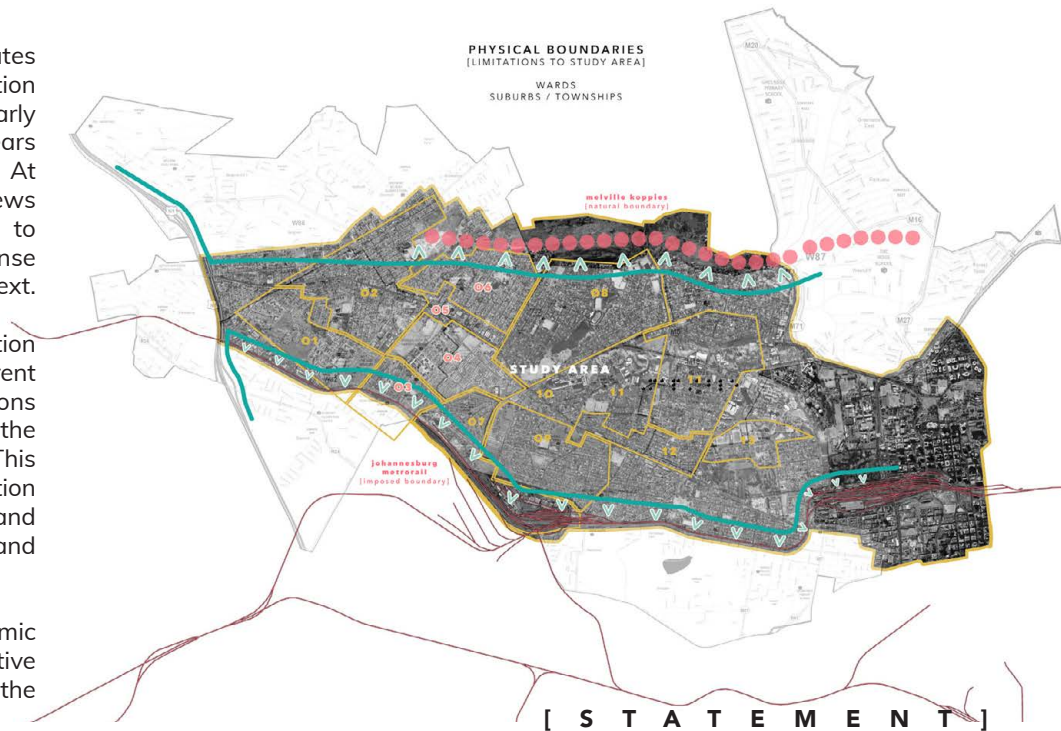
It is through this lens that a postulation should be made regarding the current spatial typology of institutions of education, while exploring the possibilities of alternative education. This alternative seeks to embody education as two-fold — both educational and economic systems of emergence and exchanges.

These educational and economic systems as informants of this alternative education are to be explored within the context of Westbury, Johannesburg.

FIGURE 1 (BELOW)
Limitations to Study Area.
Describing the physical boundaries that shape Western Johannesburg.
Author, 2018

FIGURE 1.1 (BELOW)
Suburbs within study area.
Mapping conducted in order to explore possible sites.
Author, 2018

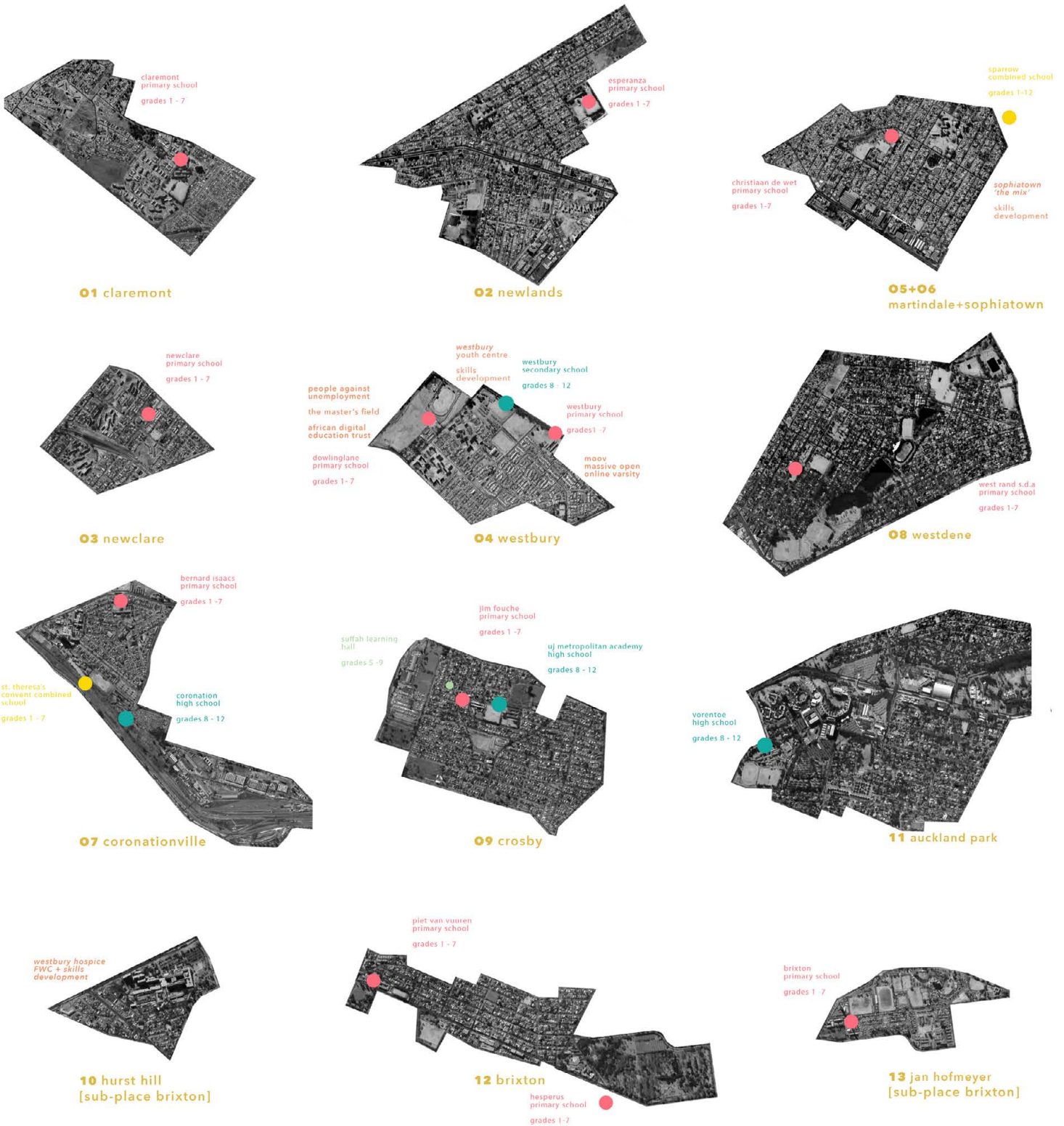
FIGURE 1.2 (LEFT)
Map of schools in study area.
Mapping conducted in order to explore possible gap for intervention.
Author, 2018



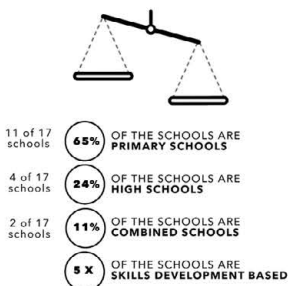
Within the dissertation context and the surrounding western suburbs (FIG.1), it becomes apparent that the provision of primary schools far exceeds secondary schools. This realization, arrived at after an extensive mapping of each school (FIG 1.2) within this area, manifests itself in 65% (11 of 17 schools) of the schools mapped being primary schools while only 24% (4 of 17 schools) are high schools. Combined schools make up 11% (2 of 17 schools) of the study, with these schools being primarily private schools.

Of that 24% of secondary schools, with a total of about 745 learners, approximately 6 learners each year (post Grade 9) in each school leave school at the closing of their Grade Nine year or at any time before obtaining their matric certificate.

This would leave an approximate 72 learners without a matric certificate each year across all 4 high schools in the



NOTE:
The combined suburbs of Westbury and Westdene sit at the intersection of all four secondary schools ('X' marks the spot)



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1.2 terminology

a. In-between:

The current South African political climate
The 'gap' in the South African education system
The interstitial space neither inside nor outside
The high school dropout
The uneducated adult

b. Westbury:

A suburb situated West of the Johannesburg CBD, characterised by a tight-knit, predominantly coloured community living in circumstances attributed to its past (limited access to amenities and facilities) - the testing ground for a new educational typology.

c. Education:

The exchange between people who have the knowledge pertaining to a certain subject and those in search of that knowledge in order to become qualified in a specific field or occupation. A system of exchanges in the form of learning.

d. Learn-work:

Derived from the live-work typology in which a place of residence and a place of work programmatically co-exist within one building. In this case, the residence is replaced by a place of learning.

e. FET College:

Further Education and Training college that caters for students from Grades 10 to 12 and beyond. Also known as a TVET college (Technical and Vocational Education and Training), however, for the purpose of this project this form is limiting in its naming.

f. AET College:

Adult Education and Training college that caters for adults in search of matric certification. Formerly ABET, (Adult Basic Education and Training) this tertiary form of education is an extension of FET and is occupation and practical learning based.

g. Digital Communications:

// DigiComms Centre
An office environment in which application development, social media consultancy, digital marketing, coding, and a call centre are integrated in order to produce innovative solutions to clients current business needs.

h. Solutionist Thinking:

A podcast title coined by Rand Merchant Bank (RMB) and broadcasted on Radio 702 that references a mindset that is innovative and curious in order to access collective opportunities. This thinking is applied within the DigiComms centre. RMB also serve as the client / partial funder for the project.

i. Innovation:

Finding solutions to issues that arise in an unorthodox manner, often achieved through changing processes or creating more effective processes with the end process being a product or idea that is more successful than its previous iteration.



[DELIMITATIONS]

This testing of an architectural typology seeks not to exist as an instrument for social engineering whereby all social ills – drug use, gangsterism, crime, safety – that exist are addressed and solved. It seeks to primarily address education and its integration with economy in order to provide enablement within the context of Westbury. There can only be hope that this exploration will then affect the current cycle of life within Westbury through changing this community's frame of reference.

FIGURE 1.3 (BELOW)
Thingz r gonna get better.
Roberts Avenue
Westbury, Johannesburg
Author, 2018



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- 1.5 the potential of education

1.3 users



FIGURE 1.4
School for Some.
Westbury, Johannesburg
Photo by Dave Southwood for
Local Studio, 2015
(edited by Author, 2018)

1.4 research questions + intentions



QUESTIONS:

What is the appropriate context for a new campus typology that mediates context and institution through economy and existing networks of exchange?

How can architecture facilitate a new educational typology within a previously and currently disadvantaged neighbourhood?

How can educational infrastructure be both provisional and autonomous in its production of space for learning?

SUB-QUESTIONS:

How does the making of the architecture contribute to the production of space for learning?

INTENTIONS:

The intention of this research document is to address the current state of education within our context through addressing a niche/in-between educational typology and its resultant architectural typology.

This architectural typology is intended to be the product of a spatial and technological exploration that suits the needs of a new architecture for an in-between educational program.

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1.5 the potential of education

Among apartheid's directory of accreditations lies the legacy of legislation which has embedded racial and ethnic segregation within the landscape of education.

In 1994, at the time of political transition and unrest, there existed "19 different racially-based education departments dispensing an unequal system justified by an ideology of cultural and ethnic difference" (Christie, 2012, p. 8). Thus, the implications of the current state of education within our context are historically hinged on the chaotic nature of the inception thereof - where historical patterns of provision, with racial preference, have provided the grounding for deep contours of inequality in education. It is these contours that have proven the most persistent to reshape in the post-apartheid era.

It was in 1996 when the first physical evidence of this inequality surfaced. The first mapping for schooling up to that point in time, as a unified system, showed that 24% of schools had no water available for use. Furthermore 13% had no toilet facilities at all while 69% had no learning materials. Of this schooling system 83% had no library facilities, compounded by 78% of schools having no school halls or assembly areas (Christie, 2012, p. 9). The latter two figures hold the heaviest weighting – schools provisioned primarily within the rural and for people of colour within the city, were designed with the purpose of avoiding any possibility of congregation, in turn providing poorer quality education.

Over time, what seem like micro-interventions, have been implemented in order to initiate reparations within education – "provision of schooling has expanded, enrolments have increased, and teacher qualifications have improved" (Christie, 2012, p. 10). New system implementations for the democratization of education have "had to engage with historical patterns of spatial production" (Christie, 2012, p. 9).

The gradual shift in system has seen an urban, black middle class that has gained access to historically white schools - former model 'C' schools. However, even in these schools, the racial relationships remain, and overall patterns of education performance remain racially skewed.

The implications of this skewed education system are still deeply prevalent. They are evidenced by retention rates as well as dropout rates recorded in high schools and universities. Nationally, a report released by Statistics South Africa (2016), places high school dropout rates at 44,6% of the population (Lehohla, 2016). In Gauteng, the rate is at 40,5%, just below the national average. Compounding this, in a report conducted by the Council on Higher Education: *A proposal for undergraduate curriculum reform in South Africa*, 2013, it is said that 55% of students across all institutions are estimated never to graduate (Council on Higher Education, 2013, p. 45).

These figures give evidence of the 'gaps' in our education system post compulsory school attendance. These sets of data cannot remain statistical norms, therefore it is herein that the potential of education lies.

In its existence as a fundamental human right, a space of learning is to be an environment for human enablement and social development. It is to be an environment for changing and testing society, in which both the ideal as well as the revolution is embodied. The ideal, personified by a tried and tested system's successes needs to be counteracted by the revolution in which that which prohibits development is radically changed and tested to produce a new ideal. Therefore, the system needs to be in constant flux.

Currently, the only flux within our learning institutions is initiated through political activism – one of the most recent acts of which have manifested in the #FeesMustFall (FIG. 1.6 - 1.8) movement.

It is in these moments of unrest that an institution often becomes tied between people and the government through the adoption of political agendas. The streets of the Johannesburg CBD (FIG 1.5) which directly string Westbury to Braamfontein (FIG. 1.3-1.5), often become a canvas for these agendas and protests, showcasing the student's plight as public concern.

It becomes notable however, that it is only within these moments of unrest and protest that a whirlwind of policy change and reviews of access to education take place. Zuma's SONA (State of the Nation Address) of 2016 saw governments first response to the inaccessibility of tertiary education through implementing a zero per cent university fee increase (State of the Nation Address, 2016). Furthermore, the 2017 SONA states fully subsidized higher education for financially disadvantaged students, excluding students within higher financial brackets.

This move by government has become paramount in reshaping the contours formed by historic inequality. These contours however are not only policy based, they manifest themselves spatially in the built forms that our houses of learning assume, as well as the urban fabric in which they sit. This institutional language embodied particularly within universities speaks of a specific exclusivity.

Walls and fences which enclose educational campuses have no public interface with streets onto which they face and produce insular pockets throughout the urban fabric (FIG. 1.9-1.14). The space surrounding these pockets is typified by an intimidating monumentality and prohibits any social interaction between the institution and its context.

Therefore, an exploration needs to be made in which a mediation between institution and context may be reached through architecture as the tool for production of a socially conscious space.

FIGURE 1.5 (LEFT)

The Johannesburg Civic Spine.
Understanding the suburbs of
interest as the culmination
point of an existing institutional
and civic spine.
Author, 2018

FIGURE 1.6 (BELOW)

#FeesMustFall Protests
Braamfontein, Johannesburg
Photo by Kgomo Tso Neto
Tleane, 2015

FIGURE 1.7 (BELOW)

#FeesMustFall Protests
University of the Witwatersrand,
Johannesburg
Photo by Imraan Christian, 2015

FIGURE 1.8 (BELOW)

*Students Protest Against
Apartheid (Striking similarities)*
Johannesburg
Photo by Ann Arbor, 1985



FIGURE 1.9 (LEFT)
Boundary Analysis.
University of the Witwatersrand
Author, 2018



FIGURE 1.10 (LEFT)
Boundary Analysis.
University of Johannesburg,
Kingsway Campus
Author, 2018

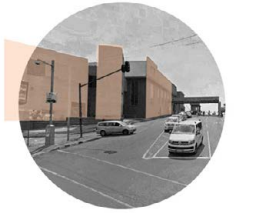


FIGURE 1.11 (LEFT)
Boundary Analysis.
University of Johannesburg,
Bunting Road Campus
Author, 2018



FIGURE 1.12 (RIGHT)
Figure Ground.
Reviewing the use and waste
of space at the University of the
Witwatersrand.
Author, 2018



FIGURE 1.13 (RIGHT)
Figure Ground.
Reviewing the use and waste
of space at the University of
Johannesburg, Kingsway.
Author, 2018



FIGURE 1.14 (RIGHT)
Figure Ground.
Reviewing the use and waste
of space at the University of the
Johannesburg, Bunting Road.
Author, 2018



- 2.1 'gap' education
- 2.2 identifying the 'gap'
- 2.3 closing the 'gap'
- 2.4 designing the 'gap'
- 2.5 architectural program exploration

G A P // O U T L I N E

This chapter explores an identified niche within the South African education system that needs to be addressed. This identification becomes necessary in an attempt to fill the 'gaps' across our context's scarred landscape that has been shaped by past policies.

This exploration is conducted through reviewing the current system and the possible 'gaps' within this system as an architectural program informant and research stance. This identified 'gap' further requires a spatial rethinking in which the current provisional nature of our educational infrastructure is questioned and altered.



O2

- 'GAP' -

- 2.1 'gap' education
- 2.2 identifying the 'gap'
- 2.3 closing the 'gap'
- 2.4 designing the 'gap'
- 2.5 architectural program exploration

2.1 'gap' education

The tale, that educational statistics, involving both schools and institutions of higher education tell (FIG. 2.1), sheds light on deeply embedded fissures within our South African educational landscapes. These fissures within the system remain 'gaps' (FIG. 2) which require filling in order to attend to the issue of incomplete schooling careers by learners, despite Government's budgetary allocations.

These 'gaps' in education are however, not only policy based. An address needs to be made, which speaks to the infrastructure and spatial needs of learning within a previously segregated society and the future of that society for "where there is an education requirement, there is an architectural response" (UNESCO, 1992).

2.2 identifying the 'gap'

Particularly prevalent in the creation of an institutional landscape in South African higher education are two specific elements; restructuring and academic product, both of which are undergoing significant reshaping. The first, institutional restructuring which commenced in 2001, has reduced a total of 36 institutions of higher education to 23, through implementing "mergers and incorporations" (Moloi , Mkwanazi, & Bojabotseha, 2014). These 23 institutions are then split by their offerings and forms of instruction where 11 are universities, 6 are 'comprehensive universities' and the latter 6 remain universities of technology (Moloi , Mkwanazi, & Bojabotseha, 2014). It is these institutions that shape our current landscape of tertiary education and give evidence of contemporary efforts that have unintentionally further excluded students from tertiary schooling.

Although the institutional restructuring that occurred post 2001 was intended to suit the needs of a developing democracy, it gave rise to various challenges which are still prevalent today.

Mergers and incorporations meant that the access to alternative institutions, such as technical colleges and vocational tertiary education, became harder to obtain as entry was now through a university gate and not a truly public institution that broadened the forms of education offered at tertiary level (Bolsmann , Johnson , Martin , & V. D. Walt , 2002, p. 5).

Furthermore, tertiary qualifications are also offered at private institutions of which there are currently 88 nationally. These private institutions offer multiple specialised degrees and diplomas (Moloi , Mkwanazi, & Bojabotseha, 2014), however also embody financial exclusion and are typically accessed by the urban elite with the exception of bursary grants.

Since 2009, in an attempt to infill the lack in technical institutions, the Department of Higher Education and Training has been responsible for Further Education and Training (FET), or what is now termed Technical and Vocational Education and Training (TVET)(FIG. 2). This increment in the educational system addresses training from Grades 10 to 12 and includes career-oriented education and training. However, it is this form of schooling to which a particular stigma is attached – one of a lesser education suited to a lesser group of people. This particular stigma, to which race and class is attached, needs to be addressed in a new light and enabled in its typology as an alternative form of education.

2.3 closing the 'gap'

The secondary branch of the education system, from which the FET college continues, is the sector in which most failures lie as there remains a bulk population with incomplete secondary education (Branson, N. , Garlick, & Leibbrandt, 2012)(FIG. 2.1). Post Grade

9 level, schooling, according to the board of education, is no longer deemed compulsory. Therefore, it is at this point that most students, particularly those at the mercy of the system, retire from schooling.

Where the enablement of an FET college lies, is in branching the 'gap' between secondary and tertiary education — a particular Achilles within our South African context. The FET college is therefore intended to repair the "discontinuity between secondary and higher education" (Moloi , Mkwanazi, & Bojabotseha, 2014) through enabling students with knowledge to make future career decisions based on practical experience. This is achieved through a curriculum that extends a learner's schooling career to include practical based learning and training in fields and skills that our economy currently lacks.

The FET college band is therefore a solution to an identified 'gap' within the system, however, owing to the nature of the stigma attached to it, has remained limited in its financing and provisions as skills and technical knowledge are reviewed as inferior (Directorate-General Education and Culture , 2011) to research in academia at not only a local scale.

There is a current global force towards producing an indestructible knowledge economy within the fields of research and academia, however, where does this leave the skills economy?

Within the Government Gazette (2018) on the National List of Occupations in High Demand: 2018, among the highest in demand are occupations such as child care workers, draught persons, town planners, electricians, application developers, manufacturers and small business managers. This sheds light on the type of labour shortage in our country - that being in particular skills and artisanal based work.

FIGURE 2
Sectors of the South African education system.
Author, 2018

The individuals in this age group constitute largely the labour force of the country.

Only close to 12% of these individuals have some post-secondary qualification.

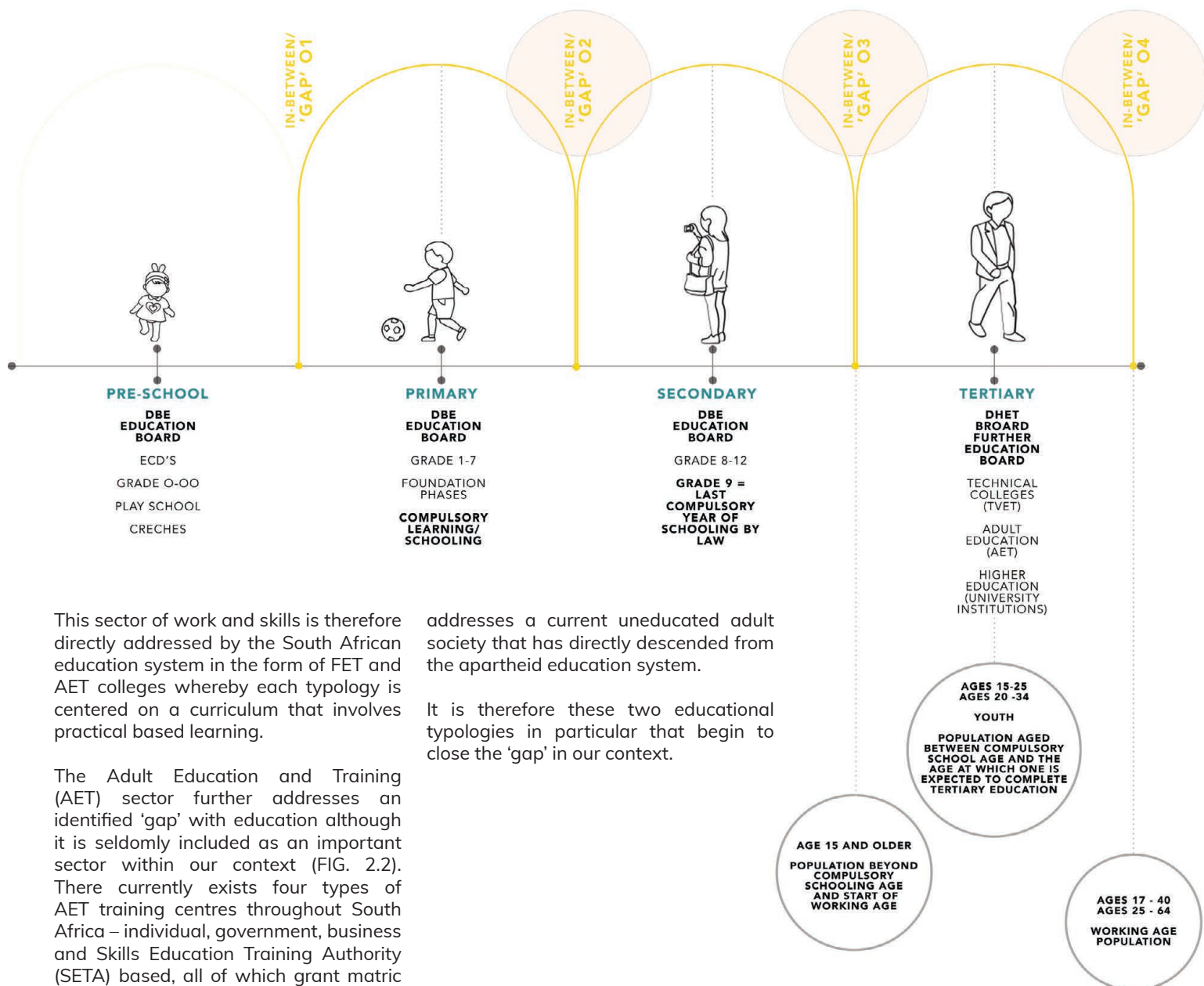
A large number of black Africans dropped out of school after having reached primary education level.

Majority of individuals in this population & age group have reached a secondary education level only.

Highest level of education*	Statistics	Black African	Coloured	Indian/Asian	White	Total
No schooling	Number	1 382 153	67 135	18 800	37 331	1 505 469
	Per cent	91,8	4,5	1,3	2,5	
Pre-school	Number	18 448	1 379	191	257	20 276
	Per cent	91,0	6,8	0,9	1,3	
Primary	Number	2 928 677	408 773	41 334	22 879	3 401 663
	Per cent	86,1	12,0	1,2	0,7	
Secondary	Number	13 359 575	1 720 847	538 247	1 384 799	17 003 467
	Per cent	78,6	10,1	3,2	8,1	
Post-secondary	Number	1 763 207	194 589	158 919	898 018	3 014 733
	Per cent	58,5	6,5	5,3	20,8	
Total	Number	19 452 060	2 392 723	757 491	2 343 334	24 945 608
	Per cent	78,0	9,6	3,0	9,4	100,0

Source: Community Survey, 2016

EDUCATIONAL ATTAINMENT AMONG INDIVIDUALS AGED 25-64 BY POPULATION GROUP [2016]



This sector of work and skills is therefore directly addressed by the South African education system in the form of FET and AET colleges whereby each typology is centered on a curriculum that involves practical based learning.

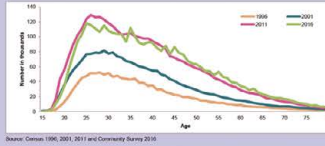
The Adult Education and Training (AET) sector further addresses an identified 'gap' with education although it is seldomly included as an important sector within our context (FIG. 2.2). There currently exists four types of AET training centres throughout South Africa – individual, government, business and Skills Education Training Authority (SETA) based, all of which grant matric certificates to adults after the completion of an FET-type course. This in particular

addresses a current uneducated adult society that has directly descended from the apartheid education system.

It is therefore these two educational typologies in particular that begin to close the 'gap' in our context.

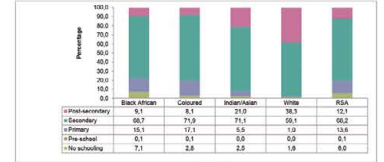
ALL GRAPHIC STATISTICS AND NUMERIC STATISTICS EXTRACTED FROM:
EDUCATION SERIES VOLUME III: EDUCATIONAL ENROLMENT AND ACHIEVEMENT, 2016 / STATISTICS SOUTH AFRICA REPORT 92-0103

DISTRIBUTION OF PEOPLE AGED 15 AND ABOVE WHO HAVE COMPLETED POST-SECONDARY SCHOOLING



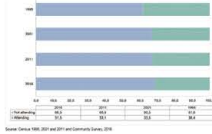
Where increases were observed in 1996 and 2011, a 2% decline in achievement in 2016 was observed.

EDUCATIONAL ATTAINMENT AMONG INDIVIDUALS AGED 25-64 BY POPULATION GROUP [2016]



Post-secondary educational attainment among black Africans and coloureds is below national average [9, 1% and 8, 1% respectively]
15% of black Africans & 17% of coloureds dropped out of school with only primary schooling

PERCENTAGE ENROLMENTS FOR INDIVIDUALS AGED 15-34 BY ENROLMENT STATUS [1996-2016]



Between 1996 and 2016 the proportion of people from ages 15-34 enrolled at an educational institution declined by 7%.

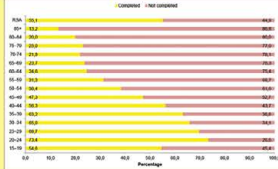
IN-BETWEEN/
'GAP' O1

IN-BETWEEN/
'GAP' O2

IN-BETWEEN/
'GAP' O3

IN-BETWEEN/
'GAP' O4

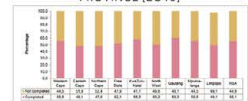
UPPER SECONDARY COMPLETION RATE BY AGE [2016]



According to the above figure, the youth have more than any other age groups to have completed an upper secondary qualification. This finding reflects greater accessibility to secondary education, post-1994. The poor completion rates among the elderly can be associated with the old Basic Education system that did not favour the majority population, and which resulted in poor completion rates among the other generation.

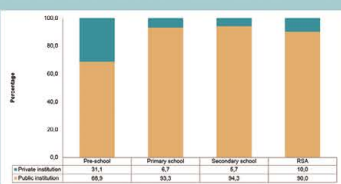
In SA, only half of the population aged 15 and up had successfully completed some upper secondary qualification in 2016.

UPPER SECONDARY COMPLETION RATE BY POPULATION GROUP [2016]



In SA, 6 in 10 individuals above the age of 15 have an upper secondary education.

PERCENTAGE ATTENDANCE AT INSTITUTIONS BY INSTITUTION TYPE - PUBLIC & PRIVATE [2016]



9/10 scholars attend public institutions
More than 2/3 of pre-school scholars attend a public school

FIGURE 2.1 (RIGHT)
Identifying the 'gaps' within the education system.
Reviewing the statistics attached to each stage of the system.
Author, 2018

FIGURE 2.2 (BELOW)
Identifying the critical 'gap'.
Selecting the critical gap within which to position this research intervention.
Author, 2018

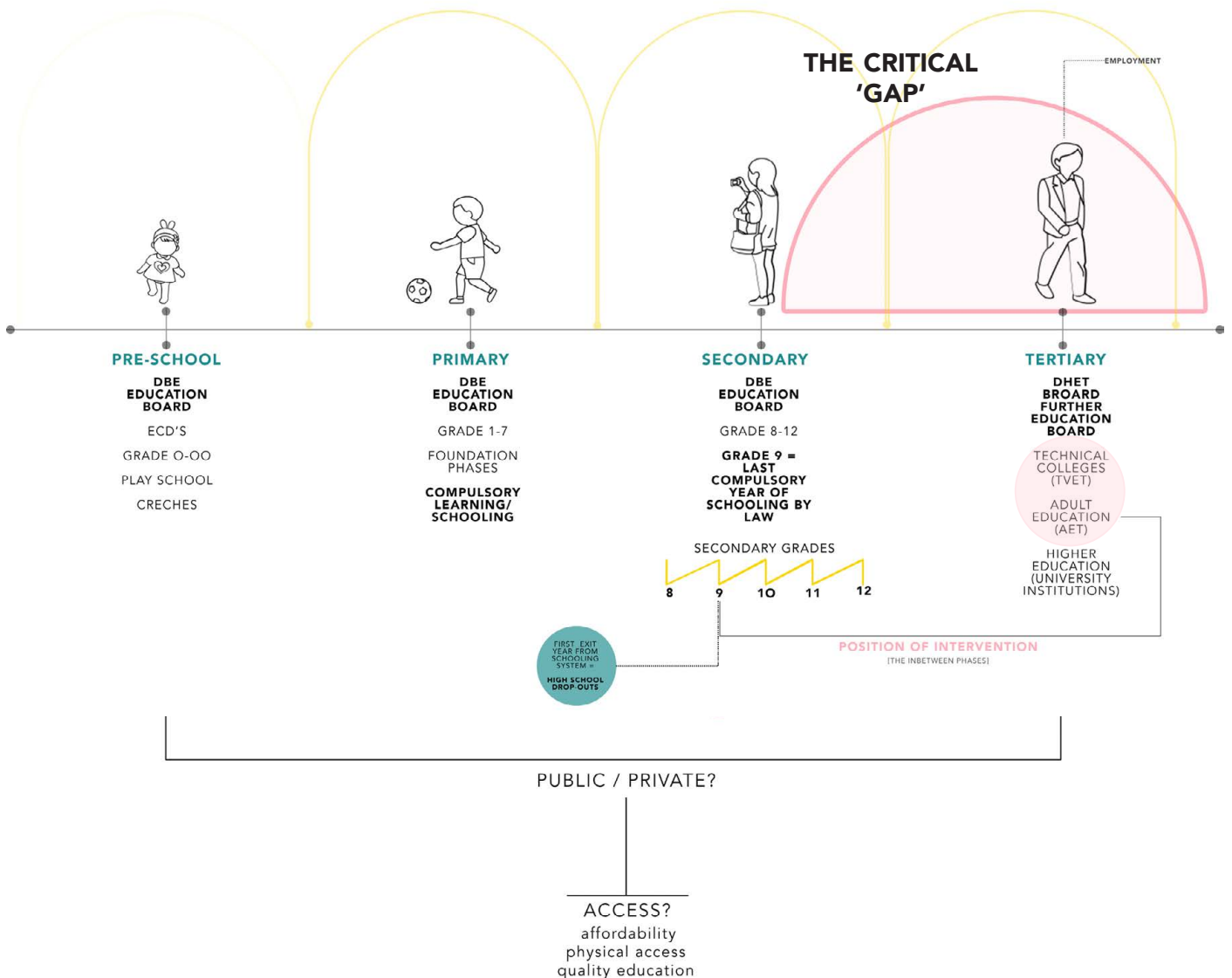


FIGURE 2.3
Provision and funding for tertiary institutions.
Understanding the nature of these phenomena in terms of infrastructure and land allocation.
Author, 2018



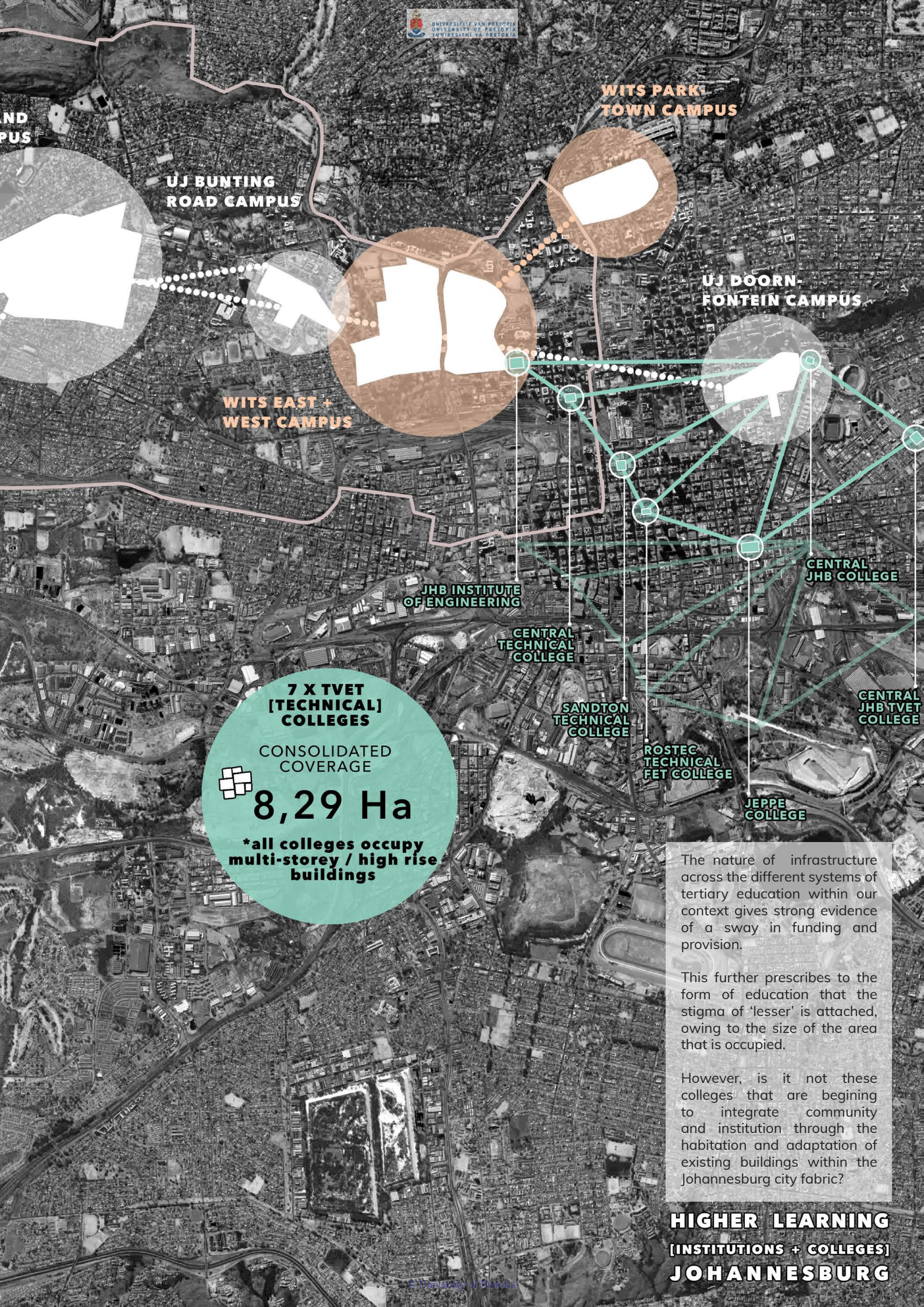
UNIVERSITY OF JOHANNESBURG [UJ]
CONSOLIDATED COVERAGE
140,58 Ha

UNIVERSITY OF THE WITWATERSRAND [WITS]
CONSOLIDATED COVERAGE
124,37 Ha

UJ SOWETO CAMPUS

WESTBURY + NEWCLARE

UJ AUCKLAND PARK CAMPUS



ND
PUS

UJ BUNTING
ROAD CAMPUS

WITS PARK
TOWN CAMPUS

UJ DOORN-
FONTEIN CAMPUS

WITS EAST +
WEST CAMPUS

JHB INSTITUTE
OF ENGINEERING

CENTRAL
TECHNICAL
COLLEGE

CENTRAL
JHB COLLEGE

7 X TVET
[TECHNICAL]
COLLEGES

CONSOLIDATED
COVERAGE



8,29 Ha

*all colleges occupy
multi-storey / high rise
buildings

SANDTON
TECHNICAL
COLLEGE

CENTRAL
JHBTVET
COLLEGE

ROSTEC
TECHNICAL
FET COLLEGE

JEPPE
COLLEGE

The nature of infrastructure across the different systems of tertiary education within our context gives strong evidence of a sway in funding and provision.

This further prescribes to the form of education that the stigma of 'lesser' is attached, owing to the size of the area that is occupied.

However, is it not these colleges that are beginning to integrate community and institution through the habitation and adaptation of existing buildings within the Johannesburg city fabric?

HIGHER LEARNING
[INSTITUTIONS + COLLEGES]
JOHANNESBURG

- 2.1 'gap' education
- 2.2 identifying the 'gap'
- 2.3 closing the 'gap'
- 2.4 designing the 'gap'
- 2.5 architectural program exploration

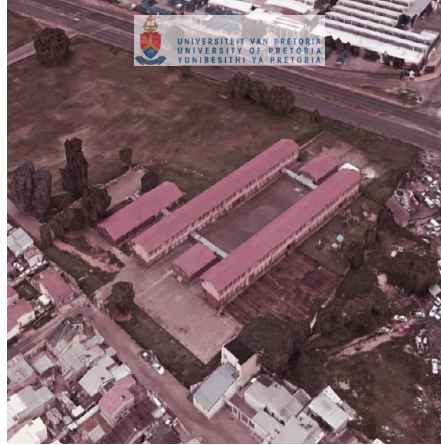


FIG. 2.4: Westbury Primary School (Google Earth edited by Author, 2018)



FIG. 2.4.1: Westbury Secondary School (Google Earth edited by Author, 2018)

2.4 designing the 'gap'

A lack in empirical research conducted on South African school typologies and infrastructure gives evidence of the importance of this aspect. What becomes important in our context however, is the basic provision of school infrastructure (figures 01 - 06) in order to meet demands (Amsterdam, 2010, p. 3). The quantitative far outweighs the qualitative nature of space and learning in space and the measure of educational architecture is how quickly and cost efficiently it can be implemented. Public school provision therefore has a likeness to that of provisional housing in the RDP scheme, in which the same school of thinking is evidenced. Architecture becomes merely provision in order to meet infrastructural demands, while the human inhabitant is forgotten as the user of that authoritarian space.

The above text outlines the sphere in which this research project therefore lies.

Can educational infrastructure be both provisional and autonomous in its production of space for learning?

TYPOLOGICAL STUDY - SCHOOLS

The above figures give evidence of the typology associated with provisional / public high school and primary schools in the Western suburbs of Johannesburg. Each school adopts the same basic design principles.

These principles are the courtyard, the long corridor and the classes that flank either side of that corridor. Above ground floor there is a severe absence of shared space, with the most shared space evident in the circulation spaces but still these spaces are not conducive to gathering.

The lack of gathering space is also evidenced in the absence of school halls (Figures 01, 03) with the effort to counter this being evident in the later addition of the hall (figure 02).

Figure 02, 05 and 06 represent 3 of the 4 mapped high schools in the Western Areas.



FIG. 2.4.4: Newclare Primary School (Google Earth edited by Author, 2018)



FIG. 2.4.5 : UJ Metropolitan Secondary (Google Earth edited by Author, 2018)

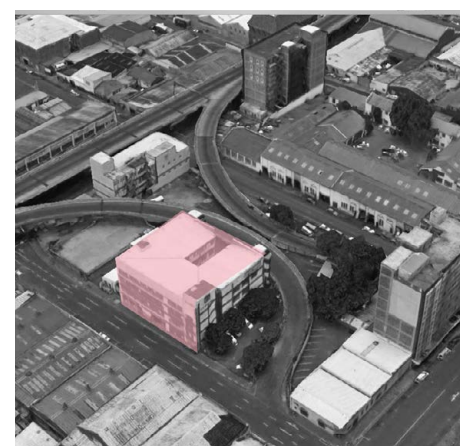


FIG. 2.5.4: Jeppe College, Marshall St (Google Earth edited by Author, 2018)

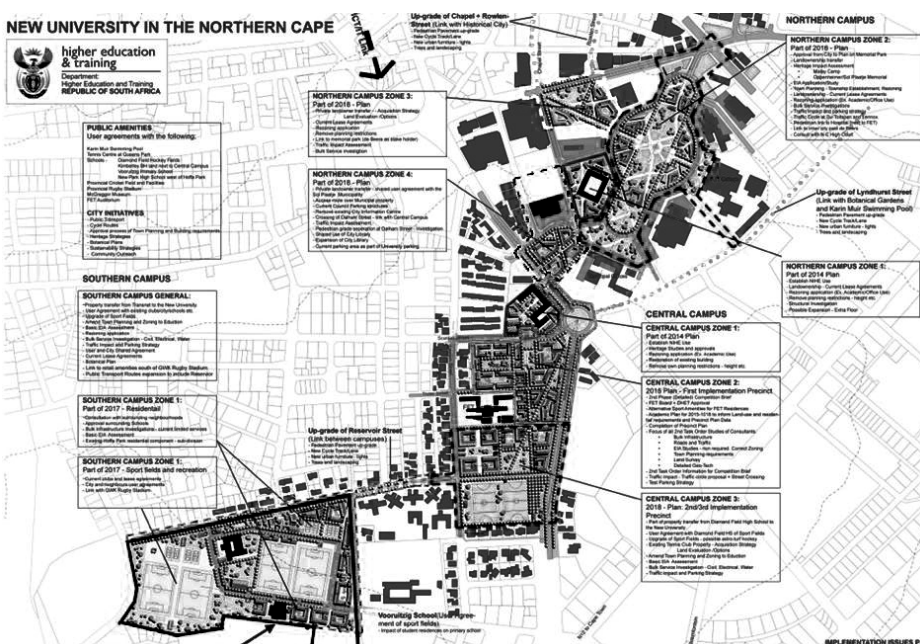


FIG. 2.6: Sol Plaatjie University Masterplan, Northern Cape, Kimberly.

Note: The success of this vision lies in understanding the campus as being woven within the city and thus the existing urban fabric has an impact thereon. Where the issue further lies is in achieving this same inclusivity in the campus buildings. (New Universities, 2013)



FIG. 2.4.2: Dowlinglaan Primary School (Google Earth edited by Author, 2018)



FIG. 2.4.3: Bernard Isaacs Primary School (Google Earth edited by Author, 2018)



FIG. 2.4.6: Coronation High School (Google Earth edited by Author, 2018)

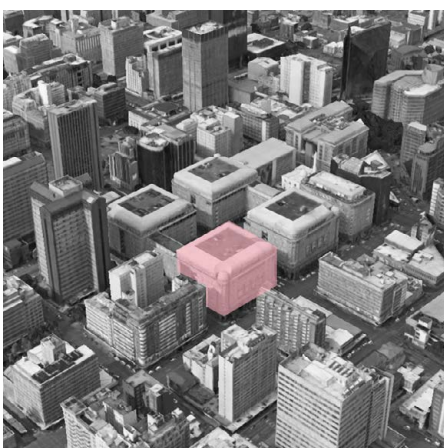


FIG. 2.5.5: Career Computer and Call Center Training College (FET & AET), Bree St (Google Earth edited by Author, 2018)

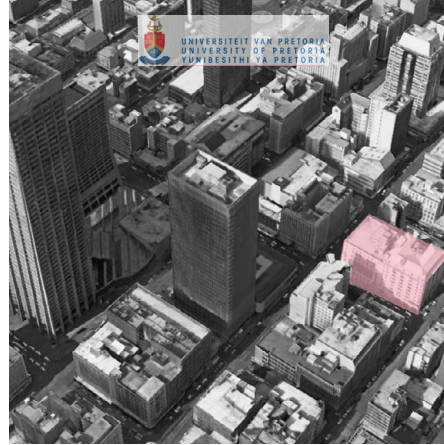


FIG. 2.5: ROSTEC College, Kruis Street (Google Earth edited by Author, 2018)



FIG. 2.5.2: City Deep Adult Education Center (Google Earth edited by Author, 2018)

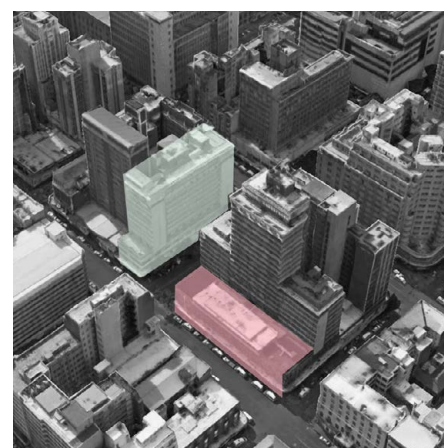


FIG. 2.5.3: Jeppe College (FET - Pink) and Jeppe Education Center (AET - blue), Eloff St (Google Earth edited by Author, 2018)

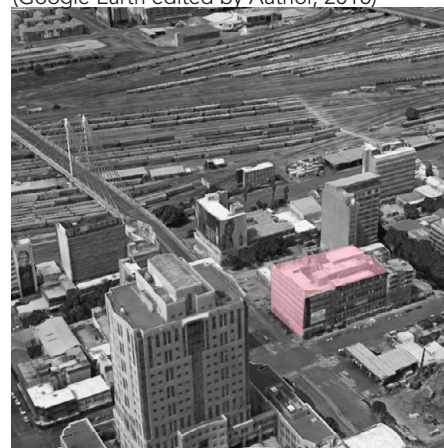


FIG. 2.5.6: IH Johannesburg (The Language Lab) (FET & AET), De Korte St (Google Earth edited by Author, 2018)



FIG. 2.5.1: Johannesburg Institute of Engineering and Technology, De Beer Street (Google Earth edited by Author, 2018)

TYPOLOGICAL STUDY - COLLEGES

The above figures give evidence of the typology associated with the typical FET and AET college throughout the Johannesburg city centre.

These institutions, evidenced in mapping study conducted on the 8 referenced colleges (figure), exist as integral to the city's urban make-up and therefore speak of a far more accessible education than the university institutions within our context.

They exist within buildings that have been adaptively repurposed over time and owing to their locations begin to serve the community of people surrounding them.

Furthermore, these colleges form an educational network throughout the city as each is easily accessible from the next. This then informs a further skills and artisanal network throughout this same city fabric.

This gives these students easy access to future employment.

It also becomes important to note that the AET colleges (indicated in blue) are less likely throughout the city as most FET colleges also provide for adult learning.



FIG. 2.5.7: Central Johannesburg TVET college, Pretoria St, Troyeville (Google Earth edited by Author, 2018)

- 2.1 'gap' education
- 2.2 identifying the 'gap'
- 2.3 closing the 'gap'
- 2.4 designing the 'gap'
- 2.5 architectural program exploration

2.5 architectural program exploration

Education as the primary program implementation in the case of this exploration is manifested as the binary between context and community as well as community and economy. Education thus exists as the 'common ground' from which the community of Westbury may be enabled. This enablement, both educationally and economically takes form in implementing both a FET (TVET) college and an AET college in conjunction with a Digital Communications and Solutionist Centre.

The potential of the FET (TVET) college:

The FET college – or TVET college in its recent rethinking – facilitates the completion of a matric obtainment for those who exited the schooling system before doing so. Above this, an FET college allows for the achievement of a post-matric qualification in the place of attending a university. Therefore, it is simultaneously a tertiary institution that is technically and vocationally based. However, it becomes limiting in the labelling as primarily technical and vocational as this form of education system trains students for employment above just obtaining a qualification.

These colleges provide training in careers from office administration, hospitality, and tourism to information technology and computer science. Primary healthcare, early childhood development and primary agriculture are also courses offered by these institutions. Furthermore, courses in the engineering field are available. These include electrical, industrial and mechanical engineering as well as motor mechanics.

Those who attend FET colleges learn through experience-based learning systems in the forms of apprenticeships and practical experience. This therefore makes these students highly employable and allows for them, through their schooling, to gain experience.

This potential in this type of program, owing to the courses it offers, lies in its ability to be fully integrated within existing networks in the suburb. The suburb already houses a number of mechanic and carpentry workshops for instance, while simultaneously there is a need for qualified Early Childhood Development (ECD) caretakers. The Digital Communications Centre also seeks those qualified in office and financial administration, as well as application development and thus there is the assurance of employment post qualification and as an option, during studies.

The potential of the AET college:

For people in adulthood, an AET college, a uniquely South African system, is an education system that enables adults to finish or improve their basic education and aims to provide basic foundational learning tools, knowledge and skills.

AET courses and FET courses have evident overlaps (FIG. 2.9) and this is therefore the reason for implementing both learning forms in one program – learning resources as well as teacher resources have the potential of being shared.

AET, above courses similar to those of the FET, includes training in:
Small, Medium and Micro enterprises (SMMEs)
Wholesale and retail
Travel and tourism
Ancillary health care
Economic Management Sciences

The co-existence of both a workplace and place of learning seeks to ensure that the dropping out of students is prohibited as it is these students who will be employed within the Digital Communications centre. This multiplicity in architectural program seeks to ensure the initialization of an economic springboard for each student while diversifying the educational

typology to include economy (FIG. 2.12).

The introduction of economy further extends the building's lifespan through ensuring income generation and employment offers for the community at large. The building thus assumes the role of housing a 'learn-work' typology instead of the typical 'live-work' typology.

The program seeks to enable the project to become a truly social space that serves the community in its daily function while promoting the occurrence of education and economy exchanges in open, public space. As an extension of its publicity, the program pivots itself on a hall that can be defined and divided into a multiplicity of spaces of different sizes in order to house different events. The hall seeks to give back a public space for congregation within the suburb as it was this sentiment that historic policy prevented. The hall can be used as a series of 'classrooms', a place for assembly, a wedding or funeral, dance classes, a church congregation, workshop or a concert, perhaps even all of the above, simultaneously.

The hall therefore exists as the programmatic point of gravity which embodies the diverse learning experience. It is in Rem Koolhaas' /OMA's project, The Educatorium at Utrecht, 1995, (FIG. 2.7 & 2.11) that the same principles are explored. The building seeks to generate diverse forms of social encounters through the "overlap between programs and ... exchange between users of its diverse functions, whilst allowing a pragmatic and ... autonomous use of individual spaces" (Dovey & Dickson, 2002, p. 8).

Furthermore, the Educatorium at Utrecht, sees the architecture as a tool for programmatic innovation where the two entities cannot exist in isolation. The program depends on the articulation that the architecture provides in order for it to exist as the social, gravitational space of the university.

FIGURE 2.7
The Educatorium at Utrecht.
Koolhaas & OMA, 1995.
Dovey K., Permanasari E., 2010

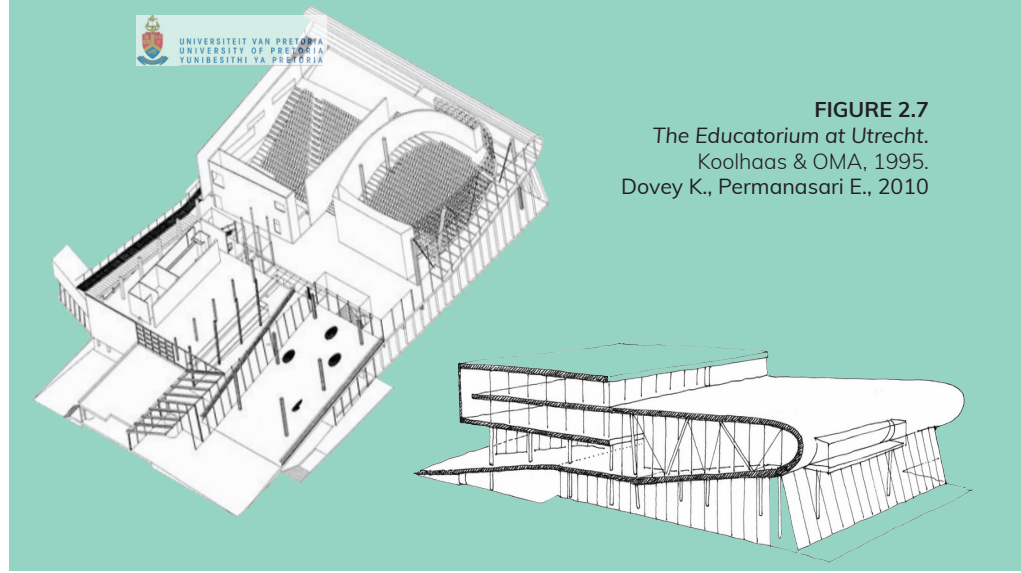
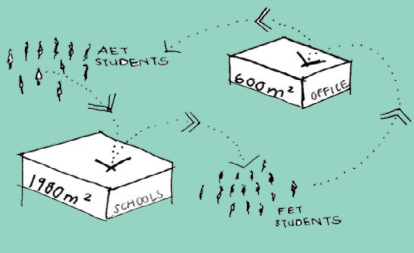


FIGURE 2.8

Program rotation and users. Understanding the user and the space they occupy. Author, 2018



The method in which the architecture of the Educatorium facilitates public space with a multiplicity of use is through its permeability (FIG. 2.7). The spatial structure is deliberately designed in order to act as a network in which students and the public are free to discover the use and programming of spaces. This becomes an important principle in understanding the role of the architecture in programmatic exploration.

The programmatic exploration within the spatial thinking of this research project is therefore further understood, through Koolhaas' influence, as a series of spatial components (FIG. 2.12) that operate independently but also contribute to the building as a scheme. This is in order to create differentiated spaces with individual identities that suit different types of learning and working, be it individual, pairs or in groups.

Furthermore, it should be said that in order to achieve differentiated spaces that are autonomous in their nature, the learning facilities should also be spaces that in themselves inspire learning.

This is the device with which educational infrastructure may move past mere provision into a qualitative realm in which the space and place-making of the learning environment inspire creativity and innovation.

It therefore becomes necessary to explore the concepts of innovation in the development of a design response in order to ensure that the spaces in which learning take place speak of the aspirational nature of education and the potential it holds in altering our current educational landscape.

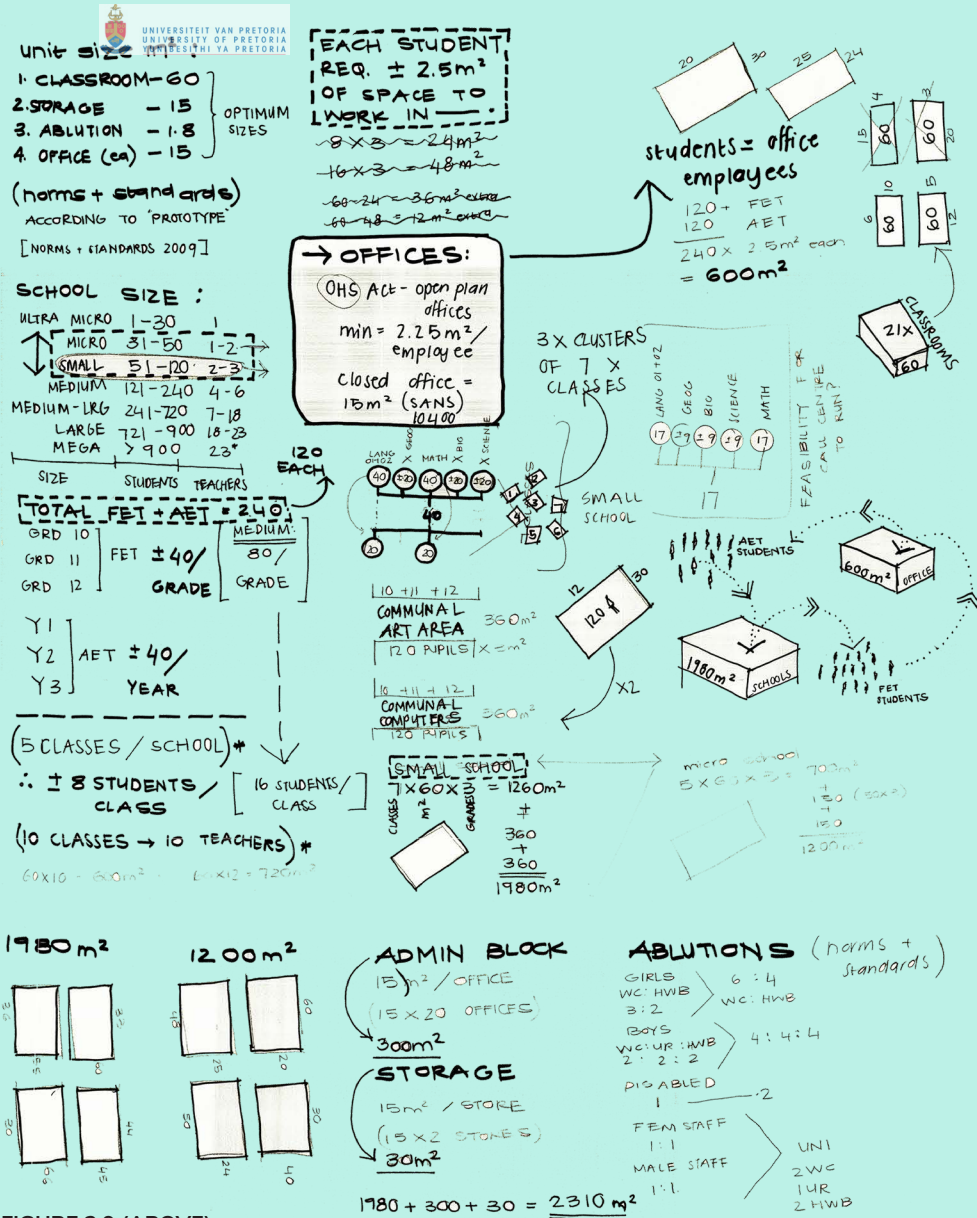
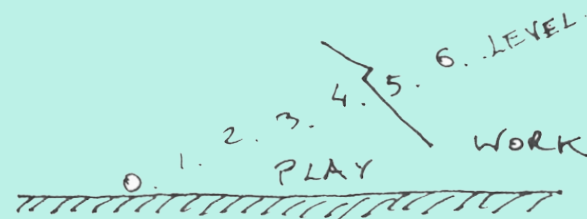


FIGURE 2.9 (ABOVE) Accommodation implications of program. Exploring regulations, areas and needs of educational infrastructure. Author, 2018



FIGURE 2.10 (ABOVE) The Educatorium at Utrecht. Koolhaas & OMA, 1995. Dovey K., Permasari E., 2010

FIGURE 2.11 (RIGHT) Private and public space in the Educatorium. Author, 2018





01 LECTURE HALL THEATRE GALLERY

PUBLIC / UNIVERSAL GATHERING SPACE TO GIVE BACK TO A COMMUNITY, RESTRICTED FROM GATHERING THROUGHOUT THEIR HISTORY AS A RESULT OF POLICY. THE MOST PUBLIC PIVOT TO THE DESIGN.



02 BUSINESS CELLS

SMALL BUSINESS CELLS / COMMUNITY PRINTER'S TRAY (INFRASTRUCTURE) AS A SPRINGBOARD FOR THE WESTBURY COIMMUNITY TO EXERCISE THEIR AGENCY WHILE PROVIDING SOCIO-ECONOMIC ENABLEMENT



03 PEDESTRIAN BRIDGE LINK

THE PHYSICAL MANIFESTATION OF LINKING THE WESTBURY CELL BACK TO JOHANNESBURG CITY, SIMULTANEOUSLY LINKING THE RESIDENTS TO THIS PRECINCT WHILE EXPRESSING EDUCATION AS A BINARY.



04 WORK SHOP EXHIBIT SPACE

WORKSHOPS AND EXHIBITION SPACE TO SHOWCASE PRODUCTS MADE BY THE HAND OF THE COMMUNITY. THESE PRODUCTS ARE AN EXPRESSION OF THE AGENCY AND CREATIVE PURSUIT OF THE COMMUNITY OF WESTBURY.



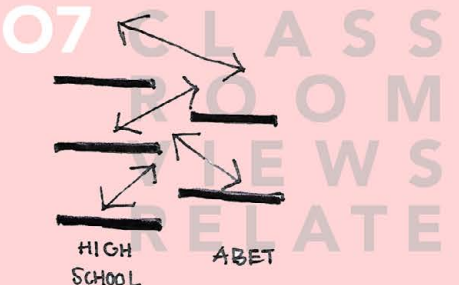
05 LEARN WORK ADULT TEEN

REPLACING THE CONCEPT OF LIVE/WORK WITH LEARN/WORK. THE LEARN/WORK SPACE IS TO ALLOW FOR VIEWS ACROSS AND DOWN IN ORDER TO CREATE SYNERGY OF SPACE THROUGHOUT WHILE FORMING VISUAL RELATIONSHIPS.



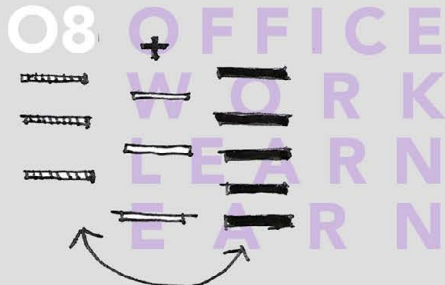
06 LIBRARY RAMP LEARN JOURNEY

LIBRARY AS PEDESTRIAN BRIDGE IN ORDER TO COMMUNICATE THE PHYSICAL MANIFESTATION OF LEARNING AS A BINDING MEDIUM BETWEEN SOCIAL AND ECONOMIC COMMUNITY LIFE WITHIN WESTBURY



07 CLASS ROOM NEWS RELATE HIGH SCHOOL ABET

CHALLENGING TYPOLOGICAL NORMS THAT ARE PRACTICED WITHIN WESTBURY SCHOOLS; INSULAR OBJECTS IN FIELDS OF GREEN. THE CLASSROOM IS TO ENFORCE THE SYNERGY BETWEEN ADULT LEARNING AND TEENAGER.



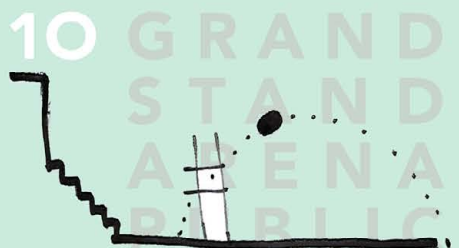
08 OFFICE WORK LEARN TEEN

OFFICE SPACE AS A THIRD FACET TO TEENAGE AND ADULT LEARNING. THE OFFICE ENVIRONMENT / SOURCE OF EMPLOYMENT FOR THE STUDENTS OF BOTH AGE GROUPS IS TO ENCOURAGE WORKING AND LEARNING IN SHIFTS.



09 INDIVIDUAL PERSONAL

PERSONAL PODS/CELLS AS MULTI-PURPOSE SPACES TO HOUSE INDIVIDUALS IN NEED OF STUDY SPACES OR ENTREPRENEURS IN NEED OF MEETING ROOMS TO ACCOMMODATE 2 OR 3 PEOPLE.

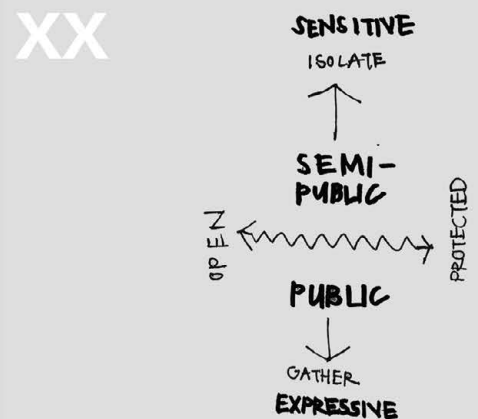


10 GRAND STAND ARENA PUBLIC

THE GRANDSTAND AS A CONNECTION TO THE UNIVERSITY OF JOHANNESBURG, PROVIDING PUBLIC SPACE AND FUNCTIONAL SEATING TO WATCH SPORTS MATCHES AND TAP INTO THE EXISTING STUDENT RESOURCE



HIERARCHY OF SPACE ORGANIZATION



HIERARCHY OF PUBLIC TO PRIVATE SPACE

FIGURE 2.12 (LEFT)

Outlining the program components.
Understand the program as a series of
components that are interdependant.
Author, 2018

G A P // S Y N T H E S I S

This chapter therefore identifies the 'gap' education as being that of a TVET and AET college where 'in-between' age groups form the user group to be addressed. The architectural educational typology thus seeks to address this 'in-between' through implementing these colleges programmatically within the intervention.

Furthermore, the architectural program exploration reviews not only the pragmatic aspects to designing for education but also the innovative and creative realms wherein spaces in themselves are to inspire learning.

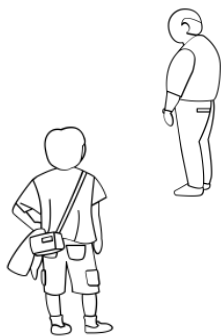
- 3.1 place, space and social justice
- 3.2 coming into being
- 3.3 the physical
- 3.4 the physiological
- 3.5 grounding project in place

WESTBURY // OUTLINE

This portion of the project grounds the research in place in order to achieve a truly contextual response to the proposed potential of education. The place is understood in its multiple facets with its current existence being a result of its historical development, its current physical existence and its physiological existence.

These three components weave the current and complex fabric that is Westbury. Furthermore, this chapter explores the suburb of Westbury as the meso area of study while the selected site is the micro area that responds to that larger scale study.

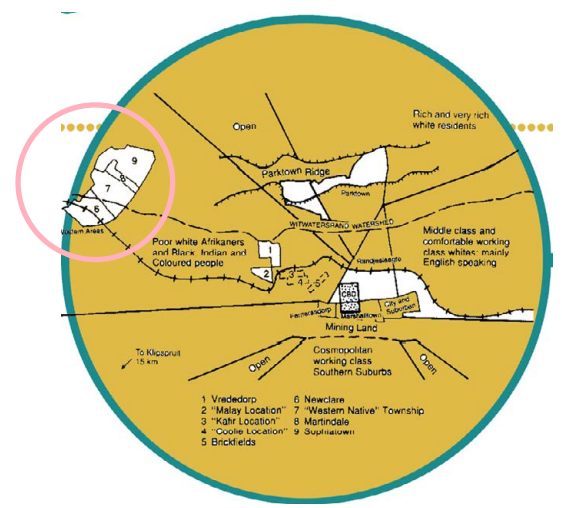
This study gives evidence of a diversely knitted urban fabric that is understood as an informant for formulating a design response that absorbs the context in its making.



O3

- #WESTBURY -

- 3.1 place, space and social justice
- 3.2 coming into being
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3.1 place, space and social justice

The production of space is a fundamental facet of humanity and exposes the influences of social relations in relativity to the spaces in which they occur. Both justices and injustices of society therefore become entities visible in space where territories are framed by their past existence as either desirable or undesirable by the Apartheid planning system (FIG. 3).

This juxtaposition of desire is clearly showcased in contexts, socially far removed from one another, yet still responsible for weaving the same urban fabric (FIG. 3.8). Power and influence through ultramodern architecture assimilated with wealth in suburbs such as Sandton (FIG. 3.4) makes for a powerful contrast against suburbs of the same nature as Westbury where space expresses the legacy of a political, unjust past (FIG. 3.1 -3.3).

Apartheid is rightly notorious for its racialization of all South African social transformation as well as the distribution of resources. These resources, not only physical, are particularly defined as having a social nature – schooling, universities, healthcare, and access to housing, civic and utilities – thus tying racialization not only to social transformation but also the place in which there is the lack thereof. In terms of the production of space, this may be understood as a “racialised political economy of space or the economy of racialised space” wherein assets of our economy are distributed along unequal lines.

In the works of Edward W. Soja (Soja, 2010) and David Harvey (Harvey, 1976) the concept of spatial justice assimilates social justices in their spatial existence – social justice exists in space, attached to a particular place. The spatial and social, therefore cannot be detached. It is therefore pertinently within South Africa that this concept of spatial justice needs to be redressed.

In Seeking Spatial Justice (2010), Soja, makes explicit mention to South Africa as an urban fabric of ‘unjust geography’ (Soja, 2010). This notion becomes pertinent in the representation of Johannesburg as the principal apartheid city planning model (FIG. 3.); a manuscript of spatial injustices (Visser, 2000, p. 90).

Centuries of colonisation underpinned spatialised relations of power, which were extended and formalised by apartheid into a “hybrid sovereignty that tied race to place in structurally unequal ways” (Christie, 2012, p. 1). It is these configurations of power and prospect that have proven difficult to shift in post-apartheid education. Distinguished patterns of “access, provision and performance” (Christie, 2012, p. 1) are defined by this historical geography, albeit blurred as “race gives way to class in segments of the system (Christie, 2012).” The continuum of these patterns with a potential to shift them is thus a major social justice issue for education policy in South Africa.

The purpose in analysing exchanges between society and space, owing to the tying of race to place through policy, thus lies in the ability to recognize social injustices, with the potentiality of formulating territorial policies targeted at dissolving injustice.

While current urban development plans, with the purpose of dissolving these injustices, are proving successful at creating a unified, macro city, through the implementation of Transit Corridors and development plans, it is at local scale, particularly in reference to the Western Areas of Johannesburg (FIG. 3.6-3.7), that the legacy of this planning model continues to fulfil apartheid intentions.

These split dynamics between city and locale, as explored by Bremner in Crime and the Emerging Landscape of post-apartheid Johannesburg (1999) “are

producing an increasingly disparate, separate city” (Bremner, 1999, p. 10). It remains evident, since the inception of the city formation that the intended un-built within the built, exist as ‘gaps’ to be filled by the “urban poor” (Landman & Ntombela, 2006, p. 5). These gaps, as are also evident within our schooling system, seek to be stitched to place in a new light.

These gaps however, “between the townships, the inner city and the suburb are widening” (Bremner, 1999, p. 10), limiting any chance of development of “shared space” (Bremner, 1999, p. 10) between people of the city, even within our democratic existence. This deeply spatial issue therefore gives opportunity for architectural innovation in addressing the conundrum of the ‘urban poor’: concentration of need within a ‘gap’ as a concentration of opportunities for development of a new typology that fills this ‘gap’.

It is this legacy of both social and spatial segregation that shape the current urban threads of the Western Areas of Johannesburg, where the suburbs of Sophiatown, Westbury and Newclare give evidence of a continuum of spatial injustices (FIG. 3.7) .

This urban poor, representative of those in the Western Areas of Johannesburg, is bound by “a lack of means to achieve a decent level of social well-being” (Landman & Ntombela, 2006, p. 5) owing to the spatial injustices in which they are forced to exist. It is this same community that has limited access to economic opportunity “due to their lack of education and skills” (Landman & Ntombela, 2006, p. 5) thus rendering them bodies of spatial injustice within an ironic democracy (FIG. 3.1-3.3).

FIGURE 3.4 (RIGHT)
Sandton Streetscape.
Worlds away yet responsible for weaving the same urban fabric.
Google Earth, edited by Author, 2018

FIGURE 3 (LEFT)
Positions of key suburbs and early townships in Johannesburg.
Beavon, K., 2004
(edited by Author, 2018)

Note (left):
Numbers 6, 7, 8 and 9
reference the earliest suburbs
allocated to people of colour.

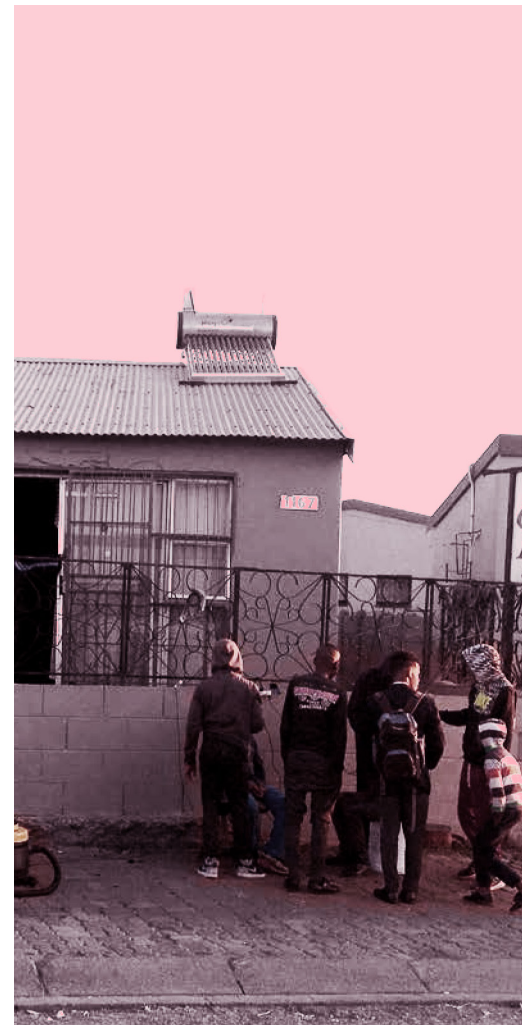


FIGURE 3.1 (ABOVE)
Capturing the experience.
Exploring Westbury, Johannesburg.
Brecher, E., 2017

FIGURE 3.2 (ABOVE)
Permanently filled streets.
Westbury, Johannesburg.
Brecher, E., 2017

FIGURE 3.3 (ABOVE)
Children and Teens play all day.
Westbury, Johannesburg.
Brecher, E., 2017





'Provisioned Pastels'
Kretzschmar Street
Westbury, Johannesburg
Photo by Author, 2018



“Ok, my name is Been Robinson... born and bred in Westbury, attended school there and also came back to teach in the area. It used to be a black area. It used to be called Western Native Township, and then people were forcefully removed from Westbury and the adjacent Sophiatown and they were moved to, what is known today as, Soweto. And then the western area that was used for coloured people and it was renamed Western Coloured Township.

In the 1980's they started demolishing the old houses and started building the new ones. We expected that things would get better. That we would get bigger houses but however, where you had one house, they now built three houses on that very same space of land, which contributed highly to the congestion, it fuelled gangsterism, it fuelled drug traffic in the area and it fuelled crime in the area. New gangs actually emerged. One of the new gangs called themselves the V.C(Varre Cross), down more there was another gang who called themselves the F.B.I's.

I really think that architecture can play a major role but it's going to take hard work and also the government has to buy in. Some things have taken place already, I have seen the new park and the new bridge. I really think, before we start with all this architecture and new designs, we should first look at a way of educating the community. Vandalism is extremely rife. People do not respect property. If you are going to build these wonderful things, you need people to understand that 'I need to look after it. I need to respect it. It is not for me but for generations to follow.'”

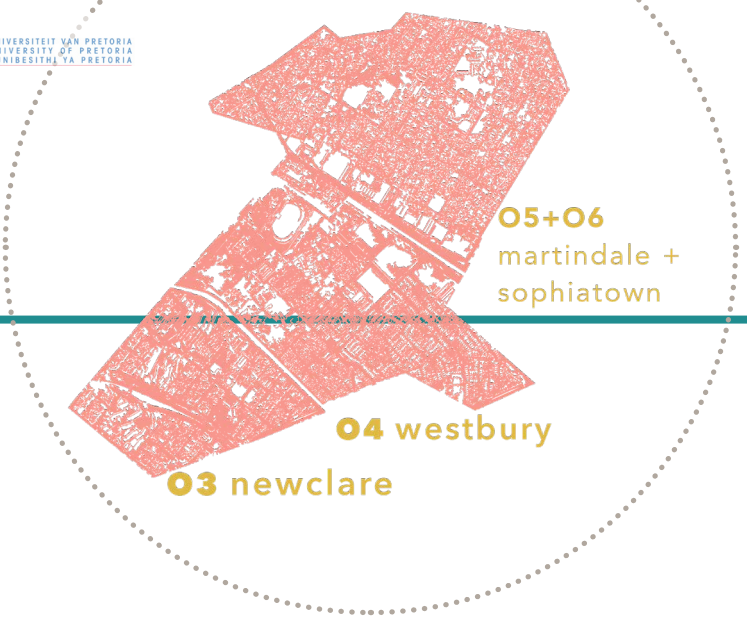
- Been Robinson

(Principal of Westbury Secondary School

'Welcome to Westbury'

*Video interview for
Local Studio, 2018
Transcribed by
Author, 2018*

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3.2 coming into being

The historical Western Areas neighbourhoods (FIG. 3.5), throughout their existence have undergone a series of reformations, most of which occurred throughout the height of apartheid. There exist five pivotal stages of development, which frame these suburbs into existence and continue to influence their spatial being. Furthermore, it is owing to the richness of these developmental stages that these contexts exist as the broad area of study.

The five stages may be classified in terms of *development* (FIG. 3.2.1), *settlement* (FIG. 3.2.2), *demolition* (FIG. 3.2.3), *re-development* (FIG. 3.2.4), and *post development* (FIG. 3.2.5) with each stage being significant of spatial changes to the built fabric.

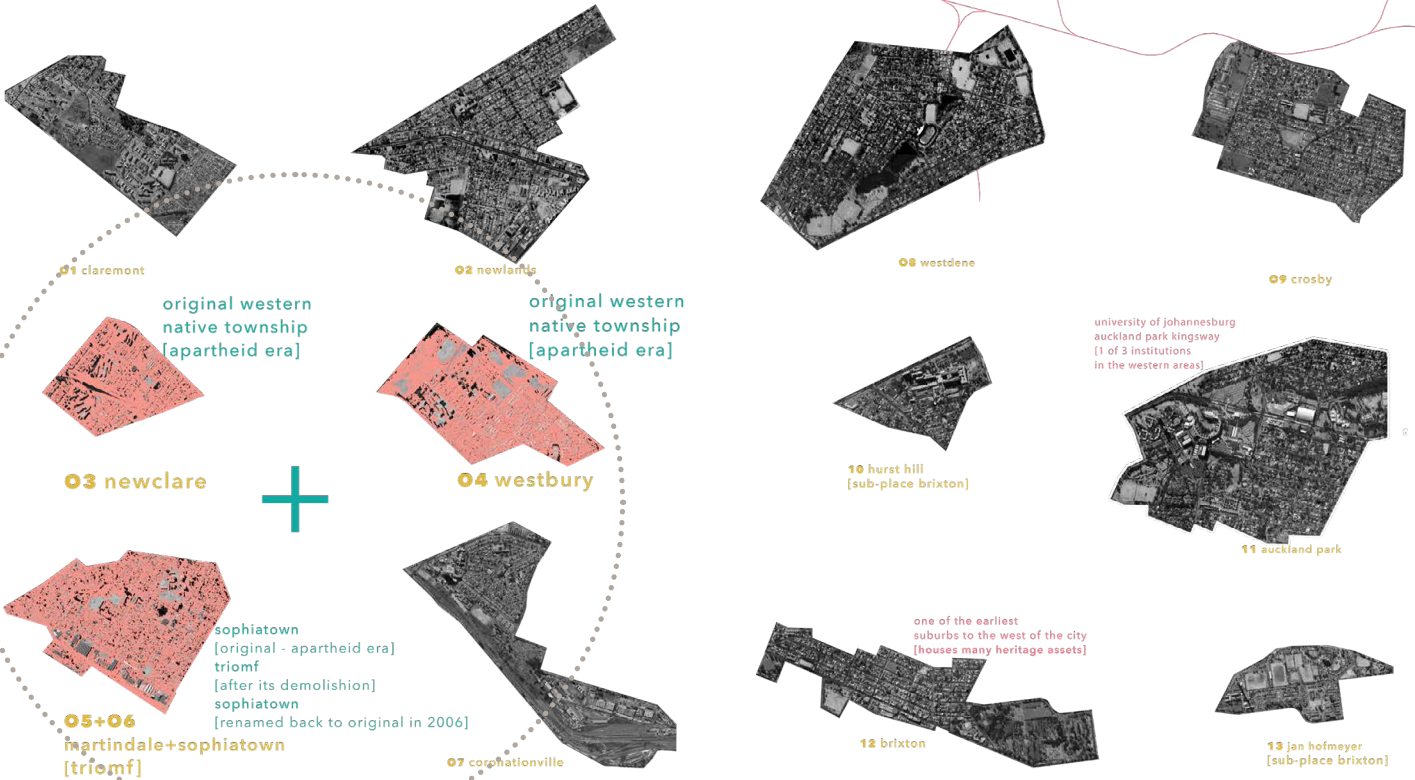
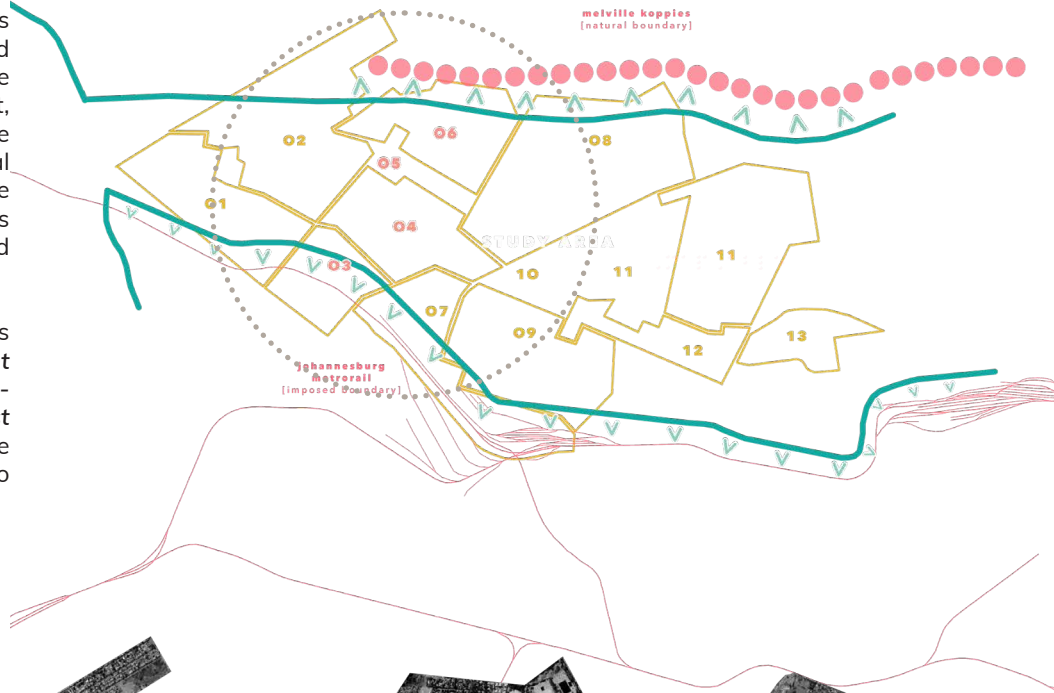


FIGURE 3.5

The development over time of the suburbs of interest within the broad area of study.
Author, 2018

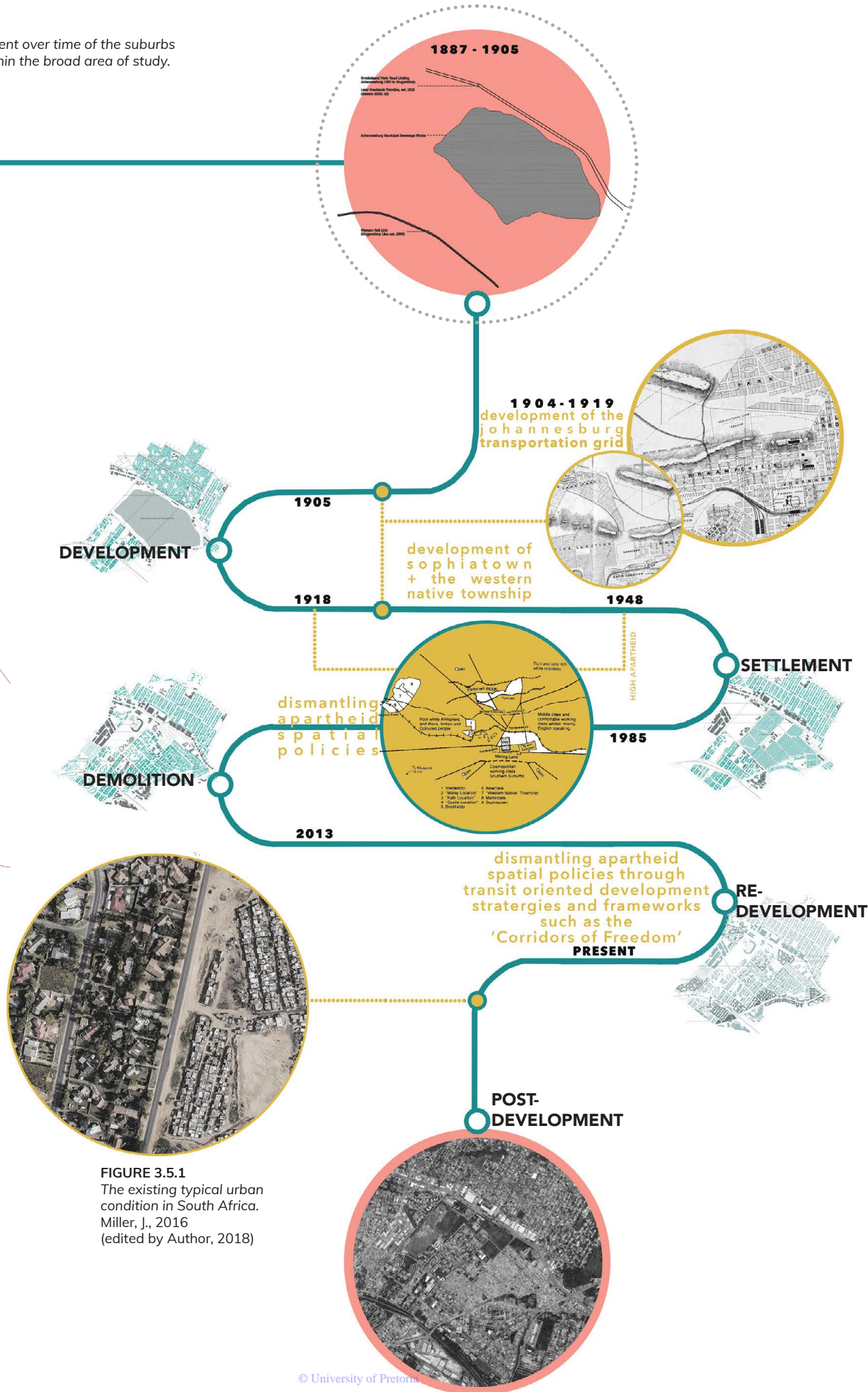
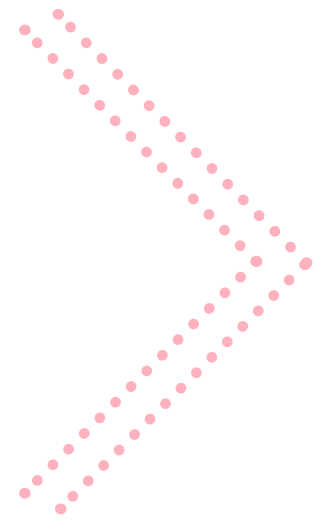


FIGURE 3.5.1
The existing typical urban
condition in South Africa.
Miller, J., 2016
(edited by Author, 2018)



3.2.1 DEVELOPMENT (1905 – 1918)

Beavon, in *Johannesburg: The Making and Shaping of the City* (2004) explains that approximately 44 new suburbs had been established to both the east and west of the Johannesburg CBD after the close of the South African war in 1902 (Beavon, 2004).

Sophiatown and Newclare were two such suburbs, both bound by Main Road (the Ontdekkers-Main Road corridor), primarily the initial east-west electric tram route until 1948. Sophiatown however, in its planning, was directly restricted from Newclare by the suburb of Martindale; a strip of industrial and commercial land use which straddled the entire south-west border of the suburb.

The development of this iconic suburb along the main east-west transport axis, saw Sophiatown as an accessible asset of labour and resources and thus could be viewed as one of the primary examples of what may be termed Transit-Oriented Development (TOD).

TOD is often assimilated to spatial justice theory (Chapman, 2015). Both approaches address the social and economic opportunities of development within a diverse socio-economic community (Soja, 2010). Above accessibility, TOD directly addresses issues of density of built fabric in relation to its transport infrastructure, reviewing that the higher the density surrounding primary arterials, the more accessible a city is. The predominant housing typologies in both Sophiatown and Newclare “allowed for extremely high densities” (Chapman, 2015, p. 6), which took the form of the stoep and yard house (Chapman, 2015, p. 6) in its multiple additions and alterations.

This adaptable housing typology allowed for these suburbs to develop and adapt naturally (Lodge, 1981) making reference to Soja’s exploration of spatial

justice wherein inhabitants govern the organization and production of their own space (Soja, 2010). It is this production of space by the individual’s authority that exemplifies what may be termed by Hannah Arendt as ‘democratic space’ (Bokiniec, 2009).

However, the 1913 Land Act confirmed the division of land between settlers and African inhabitants, where ownership over 80% of the land was in the hands of white inhabitants (Christie, 2012, p. 5).

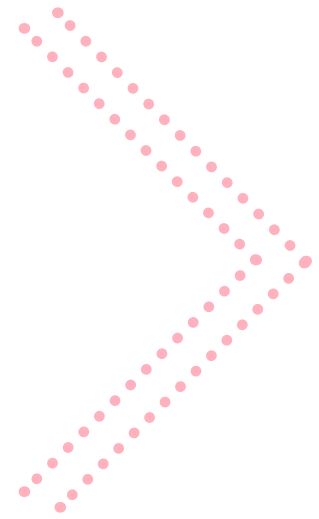
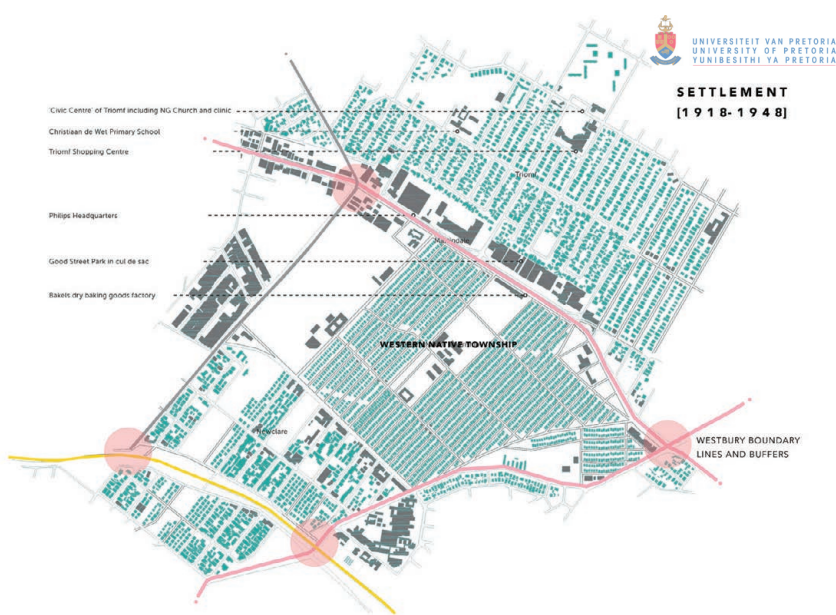
This division of land along racial lines is still evident in our current politically charged climate. Data regarding the exact divisions in an article published by CityPress shed light on the current imbalance of agricultural land evidenced in 73.3% percent (Crowley, 2017) of agricultural land owned by whites.

Black ownership however has increased. The majority (74% in KwaZulu-Natal and 52% in Limpopo) (Crowley, 2017) of the agricultural land in the most fertile provinces is under black ownership.

This racial skew is further evidenced in the attendance of school types – public and private – by both black and white students where public schools are mostly attended by students of colour (Lehohla, 2016, p. 54). Furthermore, this skew is continued into post-secondary education (Lehohla, 2016, p. 60).

In 1912, the African National Congress (ANC) was formed in response to the 1913 land ownership debate, in efforts to negotiate and hopefully negate this imbalance in land ownership, however, efforts were unsuccessful. In the ensuing period of time, segregation was entrenched in the social production of space. This draws pertinent similarities to our current debate on land ownership and the current efforts of the ANC in increasing black owned land as this historic segregation of space remains deeply entrenched.

FIGURE 3.6
Development (1905-1918).
Chapman, T., 2013,
(edited by Author, 2018)



3.2.2 SETTLEMENT (1918 - 1948)

In furthering the social and spatial injustices initiated in 1913, 'Job Reservation' legislation on the 1920's secured employment for whites at the expense of other races. Industry and production in particular were secured for the colonisers. Thus, at the time of the coming into power of the Afrikaner nationalist party in 1948, the apartheid ideology was easy to implement. The groundwork for "spatialised relations of power" (Christie, 2012, p. 7) and production had already been established.

Space was already linked to race, linking access to opportunities to both race and place (Christie, 2012, p. 7). It was within this period of division, on the vacant land of the sewerage works between Sophiatown and Newclare, that the first conceived township in Johannesburg was established; the Western Native Township (W.N.T).

This township, from its establishment under the Native Urban Areas Act of 1923 was planned as what was "later evidenced in Soweto, Johannesburg's distinctive 'second city'" (Chapman, 2015, p. 7). Physical attributes to the township such as all communal and commercial activity, were regulated by government and prescribed to specific zones throughout the boundaries, restricting the production of democratic space.

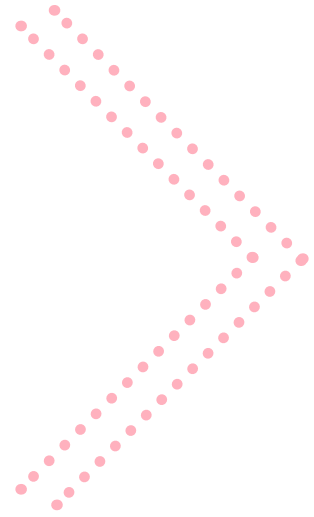
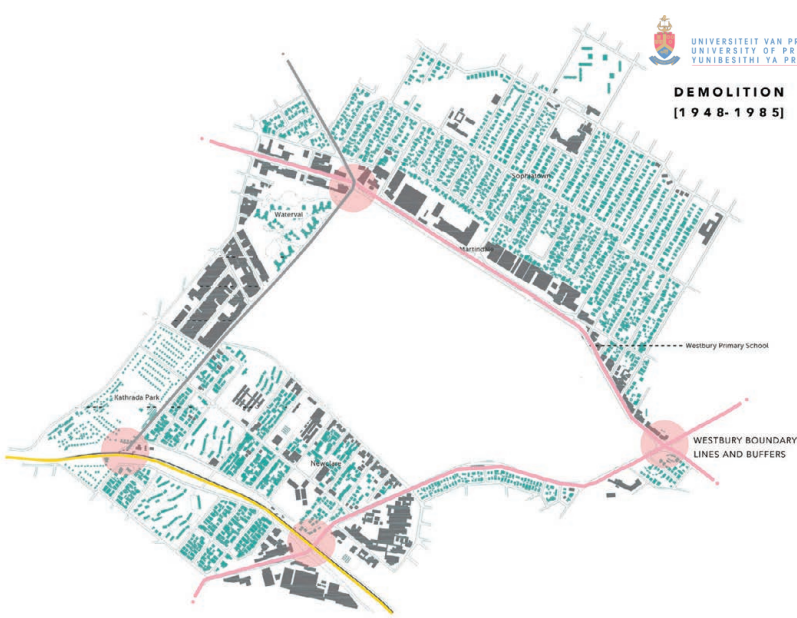
What becomes important to note is that while officials closely regulated life within the W.N.T (Beinart, 1975), Sophiatown and Newclare existed organically. Sports fields, a community centre, library and hospital were all provisioned by government within W.N.T while such facilities were non-existent within Sophiatown. These facilities positioned strategically on the opposite flank to the Martindale strip were to be seen however, as a further extension of the 'buffer'.

As the counterpoint to the W.N.T, Sophiatown's emergence took form in corner shops and churches but larger facilities of civic function were not catered for as to ensure the prohibition of congregation (Chapman, 2015). This saw the emergence of the semi-symbiotic nature of the two suburbs — the W.N.T as Sophiatown's 'playground'.

Beyond this, Sophiatown saw no provision of educational facilities within its boundaries. This absence coupled with the lack of healthcare was therefore catered for within the W.N.T and surrounds. Owing to a lack of congregational spaces, especially typified by the building of schools without halls, the church assumed the role of fostering a collective identity and community. Within both Sophiatown and the W.N.T (now Westbury), the church still exists as the root of civic production and has, over time, forged strong bonds of community.

FIGURE 3.7
Settlement (1918 - 1948).
Chapman, T., 2013,
(edited by Author, 2018)

DEMOLITION
[1948-1985]



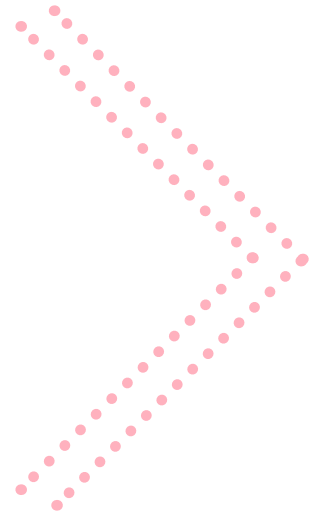
3.2.3 DEMOLITION (1948 – 1985)

After the demolition of Sophiatown under the Natives Resettlement Act of 1954, restructuring efforts began and the area was rezoned as a white only suburb.

The Martindale strip within this restructuring was recreated in its original form, as an impermeable strip, a 'buffer zone', bounding the southern edge of the newly named, Triomf. This zone can be directly likened to the guidelines of the Group Areas Act, which state that areas of differing races and culture are to be divided by a buffer of at minimum 30m [(Christopher, 1994) cited in (Chapman, 2015)].

Simultaneously however, this 'buffer' of industry and production, governed by white ownership offered the only source of employment to the people of the W.N.T. Thus, the Martindale strip not only assumed the role of 'buffer' but also 'bridge', as this seemingly controlling device existed as the only major node of economy. This lack of emergence in the economic sector is still evident today, with the only alternative sources of economy, being primarily corner shops and tuck-shop stalls.

FIGURE 3.8
Demolition (1948 - 1985).
Chapman, T., 2013,
(edited by Author, 2018)



3.2.4 RE-DEVELOPMENT (1985 - 1994)

In 1985 the plan for the urban renewal of the W.N.T was announced. This plan would see the complete redevelopment of the township into what is known today as Westbury (Lupton, 1992).

Lupton (1992) further describes how the redesign of the suburb consolidated all pedestrian and vehicular movement corridors through the imposition of an organic street articulation in order to save on road infrastructure expenditure. This consolidation however, saw the uprise of gang related violence within Westbury as the “reconfiguration of blocks forced a re-establishment of gang territories” (Chapman, 2015).

A new low-rise residential typology, which commenced in 1987, was implemented to house the residents of the township throughout the redevelopment phase. This typology, clusters of “three and four storey walk-ups set in large grassy blocks at the centre of the township” (Chapman, 2015), became significant of what Trancik in *Finding Lost Spaces: Theories of Urban Design* (1986) would term ‘lost space’ defined by “undesirable urban areas, anti-spaces, [that make] no positive contribution to the surroundings or users” [(Trancik, 1986) cited in (Chapman, 2015)]. In essence, this social housing exists as a series of objects on a plane which house a community in disjuncture.

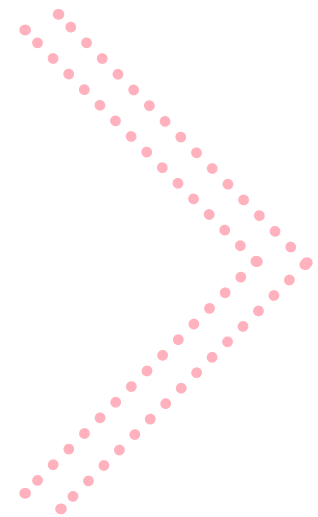
Elements that remained within the redevelopment as Westbury, were the sports fields along the northern edge of the suburb. Although already having existed for 50 years prior, these sports fields, under the Group Areas Act, in synergy with the Martindale strip, existed as the only zones of non-residential land use.

The new plan of Westbury however, sought to reinforce this idea across the entire southern edge of Main Road,

mirroring the existing buffer, Martindale, on the road’s northern edge. This was to be done through the building of both a primary and high school adjacent to the communal fields, strengthening the extents of the zone to approximately 200m between the residents of Sophiatown and Westbury.

Education, under the apartheid ideology was therefore implemented as a buffer. Apartheid spatial planning sought to utilize it as an exclusionary device in order to enforce the segregation between Westbury and Sophiatown. However, education in the light of this project seeks to exist as a method of inclusion.

FIGURE 3.9
Re-Development
(1985 - 1994).
Chapman, T., 2013,
(edited by Author, 2018)



3.2.5 POST-DEVELOPMENT (1994–2013)

The year 1994 welcomed a new life for South Africa and with it came the gradual untying of the Apartheid planning legacies which had knotted the city into being. In an attempt to correct the injustices of the past, those that still plague our spatial landscape, the City of Johannesburg (COJ), in partnership with the Johannesburg Roads Agency (JRA) altered their approach to city planning with a post-apartheid lens. This change signified a shift from high-level planning to an implementable, realistic approach.

The Corridors of Freedom project (*Restitching our city to create a new future*, 2013) is one such implementation-based project in the present process of being implemented (City of Johannesburg, 2013). Of these, the most significant being the proposal of the Bus Rapid Transit (BRT) system named Rea Vaya, a typical implementation of Transit Oriented Development strategies.

Within this development, Westbury is situated at the junction of a major arterial through the city, at an intersection along the Empire-Perth corridor. Owing to this, the suburb was flagged for further re-development by the JDA in 2014. It is at this crossing of Empire Road and Main Road that the apex of Westbury is positioned, with this point being the first face of interaction with the Westbury community.

Furthermore, owing to the Land Areas Act where racial groups were shuffled across the landscape, Westbury has remained a predominantly coloured suburb. Throughout its existence this suburb has been plagued by the injustices of its historical legacy. These injustices include unemployment, crime and social issues where education forms the base issue within each cycle.

(2013 – PRESENT)

The double-edged sword of apartheid, the mid- and post-regime, signify an altered concept of spatial justice evidenced in the continuing experience of both racial and class segregation despite the core policies driving this segregation having been demolished. Instead, polarized conditions of wealth as in the capitalist world are evidenced, all through the usual operation of the economy.

This polarity is further evidenced within systems of healthcare and schooling, as well as other civic infrastructure where the urban poor are subject to less adequate amenities. This urban poor, owing to the deep scar of spatial racial segregation is also primarily identified by colour.

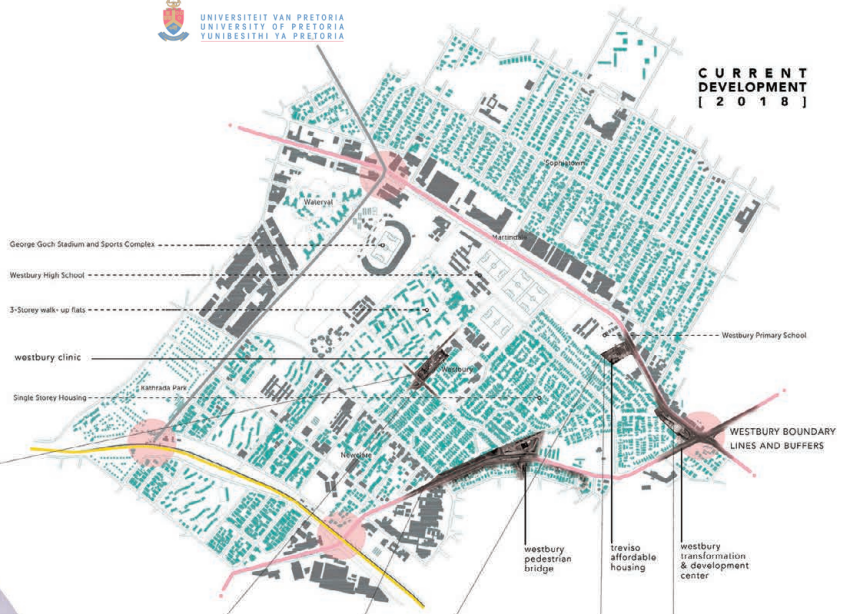
Schooling provision within the Western Areas, as evidenced from the mapping within the Corridors of Freedom proposal document is greatly skewed toward the provision of primary school infrastructure. This is further confirmed by personal mapping conducted, as previously referred, in which of the schools in the areas mapped, 65% (11 of 17 schools) are primary schools while only 24% (4 of 17 schools) are high schools. Combined schools make up 11% (2 of 17 schools) of the study, with these schools being primarily private schools.

Bremner in Johannesburg: One City, Colliding Worlds (2004), explored the idea that post-apartheid Johannesburg exists as a city that “has replaced race-based seclusions with new boundaries, identities and enclosures” (Bremner, Johannesburg: One City, Colliding Worlds, 2004) (Chapman, 2015). Compounding this, Murray, in *Taming the Disorderly City* (2010), reviews modern Johannesburg as an unwelcoming city, cruel to the jobless poor who are by default forced to reside in areas with inadequate infrastructure and services as well as bounded possibilities of income generation, issues that endlessly continue to plague neighbourhoods, such as Westbury, throughout the city.

Furthermore, owing to the stasis in which Westbury exists currently, this suburb has been chosen as the focus area of study. Its dynamic coming into existence of its present form allows for boundless spatial opportunity. This potential, coupled with the inherent social opportunities associated with this community encourage a springboard for research into possible envisioned futures.

FIGURE 3.10 (LEFT)
Post-development
(1994 - 2013).
Chapman, T., 2013,
(edited by Author, 2018)

FIGURE 3.11 (RIGHT)
Current development in
Westbury.
Author, 2018



A



C



B



D

- A** Westbury Clinic, 2017
Ntsika Architects
- B** Westbury Pedestrian Bridge & Public Space, 2016, Local Studio
- C** Treviso Affordable Housing, 2018
Local Studio
- D** Westbury Transformation & Development Center, (incomplete), Ntsika Architects

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3.3 the physical

During its 're-development' between 1985-1994, Westbury's urban fabric took form as a series of provisional housing typologies (FIG. 3.12 [I]). This was coupled with the typical educational and industrial typologies where both education and industry were placed, as previously referred, on all edges of the suburb in order to act as 'buffers' (FIG. 3.9).

Today, there exists five notable housing typologies that have been infilled and adapted over time (FIG. 3.13). This palimpsestic nature of Westbury's residential fabric in particular gives the suburb a distinctiveness as it reveals the ways in which the individual appropriates the provisional. It is in this sentiment that the residents within Westbury possess trivial governances over the production of their space (FIG. 3.12 [E;H;I]), however, this is also limited by a lack of finances as reviewed previously.

Owing to its formation and reformation over time as well as its current nature of infill and appropriation, the formation of Westbury's urban and architectural interfaces remain a process in constant flux. This flux is further influenced by current developments in which Westbury is being introduced to both infrastructural and architectural interventions.

These acupunctural interventions throughout the suburb, as triggered through Westbury being earmarked as an important node of development through the C.O.F framework (City of Johannesburg, 2013), exist as the first instances of 'common ground' within the suburb. These nodes - the recently completed *Westbury Pedestrian Bridge* by Local Studio and the *Westbury Clinic* by Ntsika Architects (FIG. 3.11) - although the first instances of successful social infrastructure, have however struggled to have widespread impact due to the magnitude of issues in the defence.

As revealed through reviewing

Westbury's physiological existence, these recent developments within Westbury, in conjunction with the C.O.F implementation, have simply begun to change the surface of Westbury with little influence on its actual urban condition. This condition is manifested as an inland island characterised by a typography of urban fonts.

The residents of the suburb have become responsible for the infill of the 'gaps' both physically and socially. In a physical sense, each home owner has assumed the role of architect in densifying, appropriating and infilling the provisional single stand house (FIG. 3.12 [B;C;H;M]) - building and narrating urban fonts over time. Densification occurs in extended families occupying single stand households while appropriation measures are evident in boundary walls as tuck-shop windows (FIG. 3.12 [G;H]) or the extension of the house's front to the street edge to accommodate a small business.

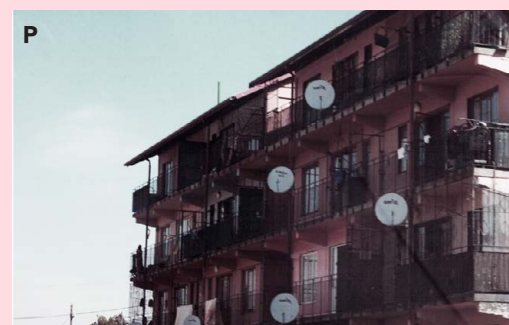
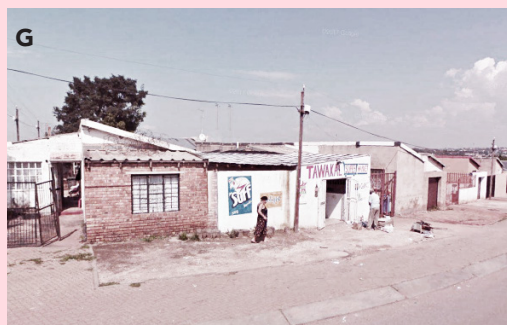
Although always small-scale owing to economic limitations, this series of infilling the in-between has come to define Westbury's urban fabric. Owing to its scale, there is an intricacy in the grain of the built, in juxtaposition to that which is leftover, with leftover spaces assuming different roles.

In the case of the single stand, provisional house typology, the leftover space functions as the outside space to each home - a back or front yard. It is however in the case of the "Corbusier-type clusters of three and four storey walk-ups set in large grassy blocks" (FIG. 3.12 [F;L;P]) (Chapman, 2015, p. 14) that the in-between space, although used as pathways, remain unprogrammed, unappropriated and therefore undesirable.

It is these blocks of social housing which have proven least conducive to an individual's production and governance



FIGURE 3.12 (A - P)
Photo series of
Westbury's urban fabric.
Understanding the spatial
implications of the suburbs
development over time.
Author, 2018



**READING WESTBURY'S
GRAIN: A TYPOGRAPHY
OF URBAN FONTS**

FIGURE 3.13
Reading Westbury's grain.
A typography of urban fonts.
Author, 2018

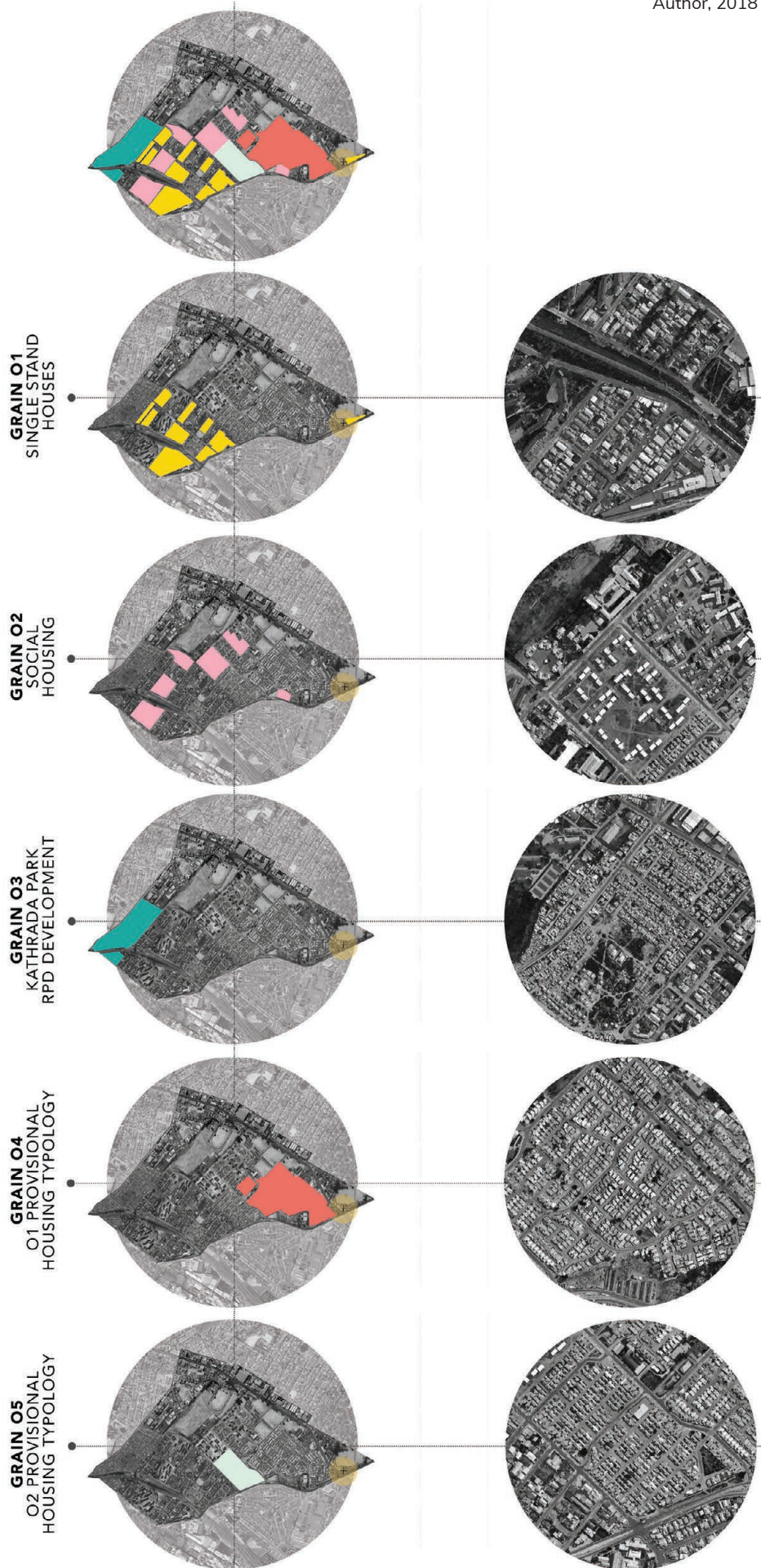
over the space in which they live. Ground floor tenants are granted the opportunity of additions to the in-between space – extending their ownership of the space, however, those in floors above ground are limited. Balconies are clothes lines and extensions of living spaces encouraging activation of the building facades and creating passive surveillance. However, this is the fullest degree of adaptation that can occur.

Paramount to the grain of the suburb however, is the character of in-between space – streets, open spaces, desire lines and designated public areas. For the most part, Westbury's current landscape could be aptly described in terms of what Trancik, in his book *Finding Lost Spaces*, 1986, terms "lost space" (Trancik, 1986, p. 4). He reviews these types of spaces as "antispaces, [that make] no positive contribution to the surroundings or users..." (Trancik, 1986, p. 4). These 'antispaces' are further described as being both ill-defined and unable to "connect elements in a coherent way" (Trancik, 1986, p. 4).

It is in these 'antispaces' and interstitial moments where the residents of Westbury live. Owing to their lack of space coupled with levels of unemployment and low school enrolments of students, the in-between is always active. Sidewalks are filled with people that are watched from filled balconies while children and teenagers play soccer on the sports fields and in other open spaces. It is in this notion that the grain of Westbury and the essential inverse of that grain are important design informants for the purpose of this exploration.

It is through living in the in-between that the community has initiated a change in the unjust geography of their landscape by claiming and governing space through creating place. These actions are achieved through appropriation, adaptation and densification. It is these principles which are to become integral to the design of a typology, within this complex amalgamation of typologies.

Furthermore, owing to this varying urban fabric which reads as "a collage of disjointed urban experiments" (Chapman, 2015, p. 24), it becomes necessary to formulate an architectural response on both scales of site and building that seeks to be the confluence between varying grains and scales of existing typologies. This weaving of the diverse urban fabric into a mat of urban informants may then achieve a level of physical unification as a possible 'common ground' to context and education.



delicacy
● consideration
dissociation ●
in
edges+
boundaries



FIGURE 3.14
Mapping the Intangible.
Boundaries, edges, desire
lines and the in-between.
Author, 2018

people
porosity
preference
in
desire
lines

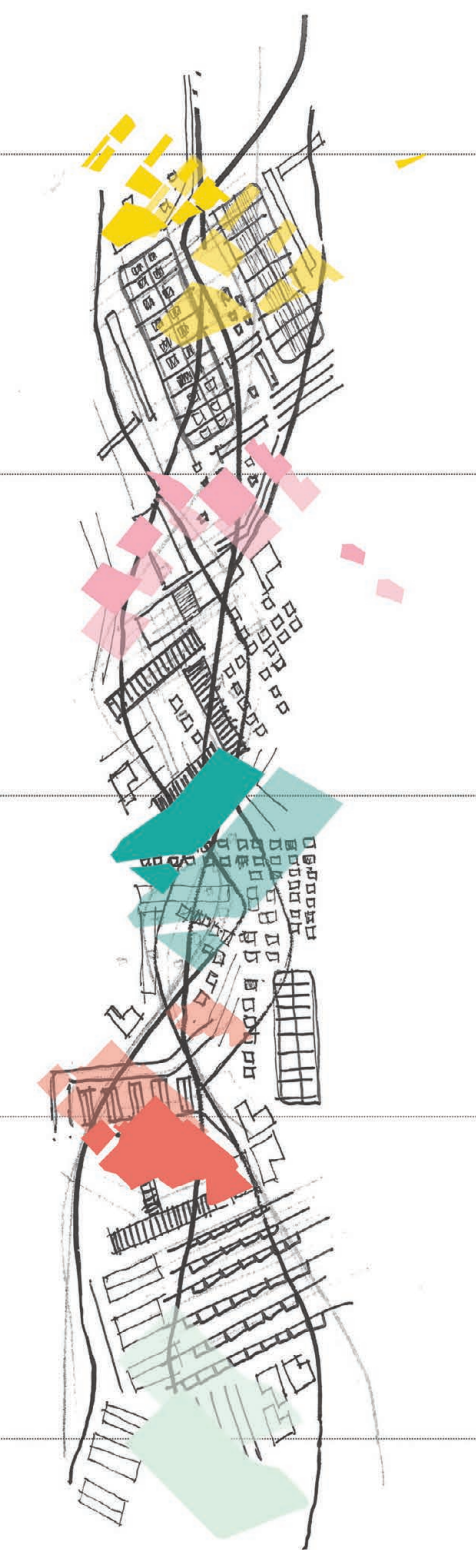


FIGURE 3.14
Mapping the Intangible.
Boundaries, edges, desire
lines and the in-between.
Author, 2018

potential
typology
receptivity
in
the
in-between



FIGURE 3.14
Mapping the Intangible.
Boundaries, edges, desire
lines and the in-between.
Author, 2018



#west



LESUFI: IF YOU'RE ANGRY COME TO ME, STAY AWAY FROM MY SCHOOLS

Gauteng Education MEC Panyaza Lesufi, together with other education officials, has launched the newly-built Everest Primary School in Westbury.



Gauteng Education MEC Panyaza Lesufi. Picture: Sethembiso Zulu/EWN

Gauteng Education MEC Panyaza Lesufi Panyaza Lesufi

Thando Kubheka | 8 months ago

JOHANNESBURG - Gauteng Education MEC Panyaza Lesufi has urged communities to safeguard school infrastructure for the sake of their children's future.

Lesufi together with other education officials has launched the newly-built Everest Primary School in Westbury.

The over R90 million school has state of the art equipment and will accommodate over 1,000 pupils.

Lesufi has appealed to aggrieved community members to keep away from schools.

"If you are angry, I'm an anger absorber. Come to me and leave my schools alone."

Lesufi told parents and school management that government would not fork out a cent should the school be vandalised.

"We are not going to take any money from somewhere and come and rebuild something that we have built for you."

Government says it's working to open more schools in the province in an attempt to address the influx of pupils, which has put the department under severe pressure.



EWN Reporter @ewnreporter
#BacktoSchool2018 The Gauteng Government is opening the newly built Everest Primary School in Westbury. [WATCH] School boy walk through the new premises not really sure where to go. TK
7:33 AM - Jan 17, 2018 - Johannesburg, South Africa
See EWN Reporter's other Tweets



WESTBURY MOTHER LIVES IN FEAR OF TWO DRUG ADDICT SONS

Pauletta Louw says she feels under attack in her home as her sons steal from her and one has even threatened her life.



Pauletta Louw, a mother of sons abusing drugs shares her story. Picture: Kayleen Morgan/EWN

Drug addiction Westbury Heavy drug addiction Sanca

Kgomotso Modise | 3 months ago

JOHANNESBURG - A Westbury mother has told **Eyewitness News** that she lives in constant fear in her home as two of her sons battle drug addiction.

On Tuesday, the South African National Council on Alcoholism (Sanca) and the Together Action Group visited the drug-ridden community on International Day Against Drug Abuse and Illicit Trafficking.

Pauletta Louw lives with four sons, two of whom are addicted to drugs.

She says that she feels under attack in her home as her sons steal from her and one has even threatened her life.

"The habit is so heavy and if you talk to him then he gets aggressive and wants to fight. There are two on drugs, the other one threw me with warm water (sic)."

Louw says she wishes that she could force her sons to go into rehabilitation as they live under her roof.

She says that she's taken refuge in support groups in the area where mothers just like her gather to share their stories and offer support to one another.

WATCH: Westbury testimonies on drug abuse in the community



(Edited by Leeto M Khoza)



'WE'RE SCARED TO WALK THE STREETS OF WESTBURY AT NIGHT'

On Thursday, a woman was shot dead and her 10-year-old child wounded when they were caught up in an alleged gang shooting.



The Westbury community has mobilised against gang and drug related crime, shutting down the area, and marching to drug dealers homes on 28 September 2018. Picture: EWN

Gang violence Westbury gang shooting Westbury protest

Mia Lindeque | a day ago

JOHANNESBURG - Westbury residents have detailed how their children live in fear and have been left traumatised by regular shootings between rival gangs.

On Thursday, a woman was shot dead and her 10-year-old child wounded when they were caught up in an alleged gang shooting.

Several streets have been barricaded with burning tyres on Friday morning and 300 Johannesburg Metro Police officers have been deployed to the area to calm tensions.



EWN Reporter @ewnreporter
#Westbury Community members have gathered outside the Sophiatown Police Station calling for corrupt police officers to be removed. Community members have named a number of police officers accusing them of taking bribes from drug lords in the area. AK
9:52 AM - Sep 28, 2018
See EWN Reporter's other Tweets

One community member said they are scared to walk on the streets at night.

"You can't even send kids to shops, the parents are not even going to

bury...

EYEWITNESS NEWS WINNERS WITH LI
LATEST LOCAL SPORT LIFESTYLE POLITICS OPINION FE

'WE'RE HOSTAGES BECAUSE OF DRUG DEALERS AND GANGSTERS'

Westbury community members have taken their frustrations to the streets after a woman was shot dead and her child wounded in an alleged gang shooting.



Westbury community members have gathered outside the Sophiatown Police Station calling for corrupt police officers to be removed. Picture: Ahmed Kajee/EWN

Westbury Westbury gang shooting Westbury protest

Email Print Tweet Share 3

Ahmed Kajee | a day ago

JOHANNESBURG - Westbury residents have detailed how their children live in fear and have been left traumatised by regular shootings between rival gangs.

Community members have taken their frustrations to the streets on Friday morning after a woman was shot dead and her 10-year-old child wounded in an alleged gang shooting on Thursday.

Several streets have been barricaded with burning tyres, and 300 Johannesburg Metropolitan Police Department (JMPD) officers have been deployed to the area to try and calm tensions.



EWN Reporter @ewnreporter
#Westbury Residents are now moving towards the police station where they will demand action from the police. TH
9:28 AM - Sep 28, 2018 - Johannesburg, South Africa
11 See EWN Reporter's other Tweets

This woman says they feel gangs are keeping them hostage in their own community.

"We're hostages because of drug dealers and gangsters. The SA Police Service know these people, and we have no idea why they don't arrest them."

Another resident says they're afraid to walk on the streets at night.

EYEWITNESS NEWS essential med M Es wil
LATEST LOCAL SPORT LIFESTYLE POLITICS OPINION FE

LESUFI PROMISES TO RID SCHOOLS OF CRIME

Panyaza Lesufi says he's in the process of establishing a team to deal with gangs and drugs at schools.



Gauteng Education MEC Panyaza Lesufi visited Westbury Secondary High School for Safer Schools Programme on 5 September 2014. Picture: @EducationGP.

Gauteng Education MEC Panyaza Lesufi Drugs Gangsterism

Email Print Tweet Share 143

Lesego Ngobeni | 4 years ago

JOHANNESBURG - Gauteng Education MEC Panyaza Lesufi says he's determined to rid all schools in the province of ill-discipline and crime so they can become centres of excellence.

Lesufi and the Sophiatown police raided a school west of Johannesburg yesterday looking for drugs and weapons but found only a bag of dagga.

The MEC says Gauteng pupils mostly fail to perform academically because of drug abuse and gangsterism.

"Other children are playing with computers while our children are playing with dagga so for us to compete with the world we have to change our mind set."

Lesufi says his department plans to invest millions of rand in digital learning material from next year but he's worried about the rate of crime in schools.

He says he's in the process of establishing a dedicated team to deal with gangs and drugs at schools.



Video: War on drugs and gangsterism in schools.

EYEWITNESS NEWS SAVE R200
LATEST LOCAL SPORT LIFESTYLE POLITICS OPINION FE

POLICE PROBE VANDALISM OF REA VAYA BUS STATION IN WESTBURY

Protests against gangsterism entered the second day on Monday with residents calling on the army to intervene.



Westbury residents protest on Monday, 1 October, saying they have no confidence in the police, who they have accused of corruption and being on the payroll of drug lords. Picture: Louise McAuliffe/EWN

Kgomotso Modise | about 6 hours ago

JOHANNESBURG - Police are investigating the vandalism of a Rea Vaya bus station in Westbury overnight during violent protests.

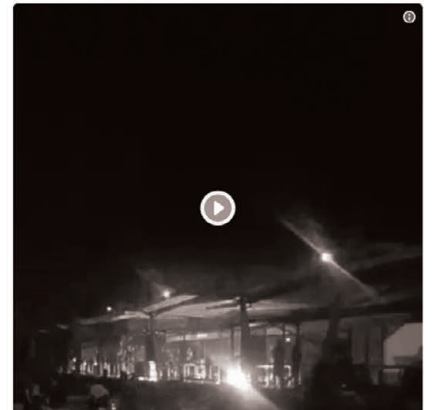
Protests against gangsterism entered the second day on Monday, with residents calling on the army to intervene.

This after a woman was killed last week and her niece injured in an apparent gang shooting.

Eight people were arrested on Monday and are due to appear in court.

Police Minister Bheki Cele and Gauteng Community Safety MEC Sizakele Nkosi-Malobane are expected to visit the area on Tuesday morning.

The police's Kay Makhubele says: "Since last night, they vandalised the Rea Vaya bus station but this morning it's quiet. The police have been deployed and they're still continuing monitoring. The major roads passing by the area are operating."



- 3.1 place, space and social justice
- 3.2 coming into being
- 3.3 the physical
- 3.4 the physiological
- 3.5 grounding project in place

3.4 the physiological

[Findings based on report by Neil Klug: (2016). The more things change the more they stay the same: a case study of Westbury, Coronationville and Slovo Park informal settlement. Spatial Transformation through Transit-Oriented Development in Johannesburg Research Report Series, South African Research Chair in Spatial Analysis and City Planning. Johannesburg: University of the Witwatersrand.]

The broadcasted slant of Westbury as a crime diseased island of shootings and drug use plagued by inequality and unemployment, although an accurate reflection, fails to cover the tight-knitted, networked community of proud individuals who reside here. It is these same residents who congregate continuously to combat the ills by which they are defined.

This suburb's legacy continues to impact identity politics and development, both economically and socially. Economic marginalisation as experienced through unemployment and criminality, coupled with social pathologies calls for the injection of socio-economic infrastructure within Westbury as to address sentiments of isolation, insularity and vulnerability between residents, despite the suburb's physical proximity to the city.

Unemployment within Westbury is rife and is largely influenced by both "age and gender" (Klug, 2016) with the majority of women remaining unemployed. This occurrence attributes itself to "lack of skills" (Klug, 2016) and qualified knowledge as well as "childcare constraints" (Klug, 2016) and duties of the household.

In the words of Klug in his report on Westbury conducted in 2016 – "Westbury is experiencing [both] a perceived and real downward spiral of unemployment, poverty, drug abuse and crime" (Klug, 2016). These characteristics may be ascribed to the aforementioned skills and education that the community lacks

across all genders and ages compounded by the easy slope into the cycle of poverty most prevalent in a community plagued by unemployment. Education within the community although perceived to be effective rarely reaches tertiary level, thus limiting the employment of individuals in well-paying jobs.

However, in what the suburb lacks; "effective integrated response[s] to... social and economic challenges" (Klug, 2016), it makes up for in "high levels of community volunteerism" (Klug, 2016), efforts that succeed the high number of government and non-governmental social institutions attempts at restitution.

These efforts of volunteerism are realized in social organizations that attempt to heal the scars still apparent on the Westbury population's psyche. These scars, as legacy of historical events, have resulted in "mistrust in the state and a feeling of disempowerment as a community" (Klug, 2016), which manifests itself in the forms of drug use and criminal acts.

Contrary to this are examples of those within the community who are determined to reach restitution. Klug (Klug, 2016) reports; "one business feeds over 70 children daily from their own resources as part of their contribution to the community" (Klug, 2016) while another "undertakes... voluntary drug counselling work in the area" (Klug, 2016) in attempt to eventually rid the community of its stigmas. Compounding these individual agents of change, are formal organisations that exist in the same capacity.

The Abraham Kriel Childcare Campus takes care of children with HIV/AIDS through campus and home-based care, simultaneously introducing extracurricular remedial education while the Together Action Group (TAG) organization addresses crime within the

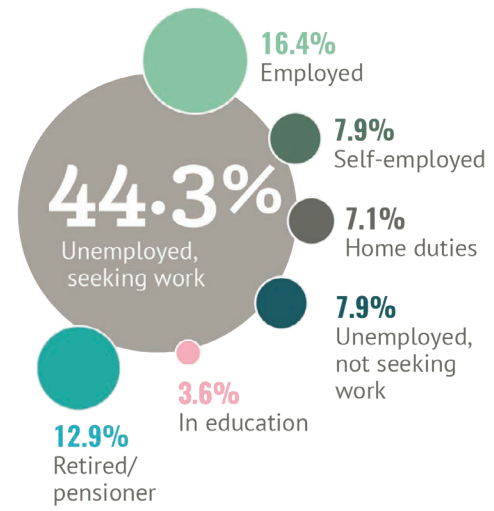
FIGURE 3.16
'Friday Braai-day, Everyday'
Westbury, Johannesburg
Photo by Dave Southwood for
Local Studio, 2015



community through a "restorative justice programme for young criminal offenders [between the ages of 20-30] by means of skills development" (Klug, 2016).

In addition to these interventions, there are 35 active state initiatives, which operate under the umbrella organization of the Westbury Local Drug Action Committee (LDAC) with the event of meetings at the Westbury Transformation Development Centre (WTDC). However, through multiple interviews conducted by Klug (Klug, 2016), it became apparent that the community views the LDAC's efforts

FIGURE 3.15
Unemployment
statistics in Westbury.
Klug, N., 2017



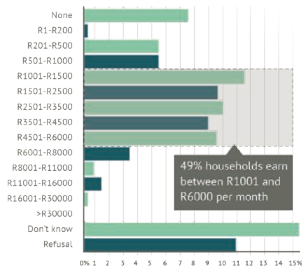
ineffective owing to communication disjunctions.

The WTDC, currently under development by Ntsika Architects, once completed will house a computer training centre, early childhood development centre, social workers, a bakery, sports facilities and various other social activities. This centre was developed as to be the link between the public and the government (Klug, 2016), context and institution, with the binding program to be conducted by the Department of Social Development in order to further address drug abuse and awareness for the youth in the area.

The site of this current development is situated directly opposite the immediate site of investigation for this research project (Figure). This therefore allows for the potential of cross programming between the two interventions where students with infants are able to leave their children, under supervision, while learning. In other scenarios, social workers are able to give career guidance to students while adults in need of computer skills, once completing a course at the WTDC, are able to be employed within the Digital Communications Office as a call agent, or basic application developer.

Although our context has undergone democratic transformation, this community seems to exist within its continuum of identity, “claiming a marginal space of identification” (Dannhauser, 2006). Restitution of the Westbury community is paramount as it becomes apparent that in reminiscing the stereotypical characters of the past, these same identities are being assumed in the present: “the redeemed gangster, the ambitious youth who escapes the ghetto [and] the tireless worker for social upliftment” (Dannhauser, 2006).

HOUSEHOLD INCOME



PERCEIVED BIGGEST CHALLENGE

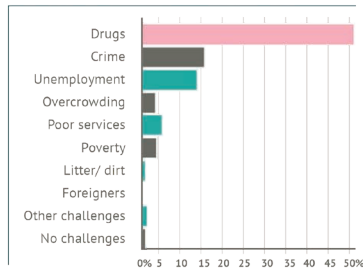


FIGURE 3.17
Statistics reviewing Westbury's
challenges.
Klug, N., 2017



FIGURE 3.18
Nonchalant.
Westbury, Johannesburg.
Stark, T. L., 2018



"I remember how I used to stand at the main road to help the kids get over and this bridge has actually helped us with alleviating that problem. However, the fact that we have such a high usage of drugs in the area, the druggie that is looking to get a fix is looking for something valuable that he can use and sell. So the type of material used, if they could see that it would be useless to break down and sell/use, there would not even be an attempt to do that (vandalise).

Westbury is a very congested area, overcrowded, not enough space for kids to even play. instead of just saying that this park is now for kids for afterschool play, there is a gym also, where I can go and promote physical wellness.

It's an area being used to hold parties and drugs for to be sold.

The future for Westbury, at the moment, looks bleak. Unless we are going to come together as a community and see how we are going to use people such as yourself (referring to interviewer Shawn Constant) to assist us. There is hope, and maybe I am contradicting myself, but there is hope.

The future lies in education, there is nothing else.

It's senseless consulting with the people without them actually understanding what is happening and how it is being done to impact the community. For me, that is the only way to salvage the future for our children."

- Been Robinson

(Principal Westbury Secondary School

'Welcome to Westbury'

Video interview for
Local Studio, 2018
Transcribed by
Author, 2018

- 3.1 place, space and social justice
- 3.2 coming into being
- 3.3 the physical
- 3.4 the physiological
- 3.5 grounding project in place

3.5 grounding project in place

The site, a knot that ties two primary arteries within the Johannesburg city fabric, perches itself on a corner. This corner sees the daily pendulum of commuters within the Westbury community, greeting them as depart and arrive. Beyond this, this site acts as the culmination point of an existing civic and institutional spine that braces the Johannesburg CBD to Westbury.

With the only pedestrian exit out of the Westbury cell on the opposite sidewalk, the site becomes an active pedestrian node. However, this activity is in temporary, high intensity doses. The physical site is therefore an in-between space in its current state. Neither a place to arrive to nor one to depart from, these daily rituals merely occur with the site as a facilitator, owing to its opportunistic location.

The existing buildings on the existing street edge to the site give further evidence of this in-between nature as they stand as skeletons that have worn multiple skins over time and now stand bare.

These structures, designed for retail, are mostly uninhabited with the stores that still breathe life standing on their last legs. Main Road at its peak existed as a high street of retail and commerce with shops owned by members within the community, however, now these stores on this same street speak of the perils that plague this community.

Their pressed ceilings and gentle overhangs over the street edge speak of a fine and sensitive grain and scale of space while their recessed shopfronts that step up off the sidewalk give evidence of threshold and definition of internal space.

Furthermore, these existing buildings relate a narrative of Westbury's existence over time and read as a common thread that ties this site directly to the

community and the suburb's coming into physical existence which intended these structures to act as physical barriers between neighbouring suburbs.

The site owing to its components and proximity acts at three particular scales – urban, block and micro (the immediate site) and has the potential to shape all three of these scales.

At an urban scale, the site, owing to its situation acts as not only the culmination point of an existing civic spine but also the starting point of the Westbury suburb. It is therefore in this regard that the site is read as the confluence point of the varying grains and scales within the Westbury built fabric.

Westbury, owing to its size of 1.03km² has the potential to be an entirely walkable 'city' as no two primary nodes are further than 1km from one another. Furthermore, the site's urbanity is further influenced by the components that bind the site on its edges such as the two main roads, one being a Johannesburg Roads Agency development corridor. This road, with its BRT route makes the site highly accessible by public transport. On its other end, the site is bound by the existing University of Johannesburg sports fields which partially share grounds with the Westdene Dam.

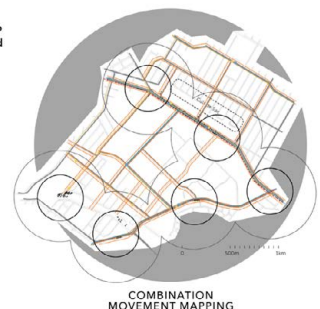
The block scale of the site is primarily influenced by the existing buildings that flank the street edge. There exists a scalability to each block in response to an existing scale of development that over time will influence the changing fabric of Westbury. Above this, there is a draw of the residential grain into the commercial grain evidenced in the scale of the existing commercial fabric. The block on which the site sits has the potential to further weave residential and commercial scales into a new development typology.

At an immediate scale, the site is comprised of strong design informants. It is situated on a busy corner that shapes the most public, unobstructed entry point to the site while it responds in height to both the residential and low-density commercial on either end. Its back end opens to a series of existing sports fields and is situated on a slope toward these fields. The existing structures turn their backs to the site, but this allows opportunity for intervention.

The site, owing to these varying scales and different opportunities for development therefore reads as the drawing point of the grid that formalises the already haphazard Westbury urban fabric into a legible and logical response. This grid, influenced by map-building principles thereafter seeks to be organised and extrapolated. This extrapolation then has the potential to form the structural basis of the design. Therefore, the context directly influences the design concept and that concept is then formalised into a simultaneous tectonic response to the site.

Through the overlaying of data it becomes evident that Westbury has the potential to exist as a pedestrian oriented township with many urban possibilities.

It manifests a tightly woven urban fabric with ideal walking circles and accessible transport modes and routes.



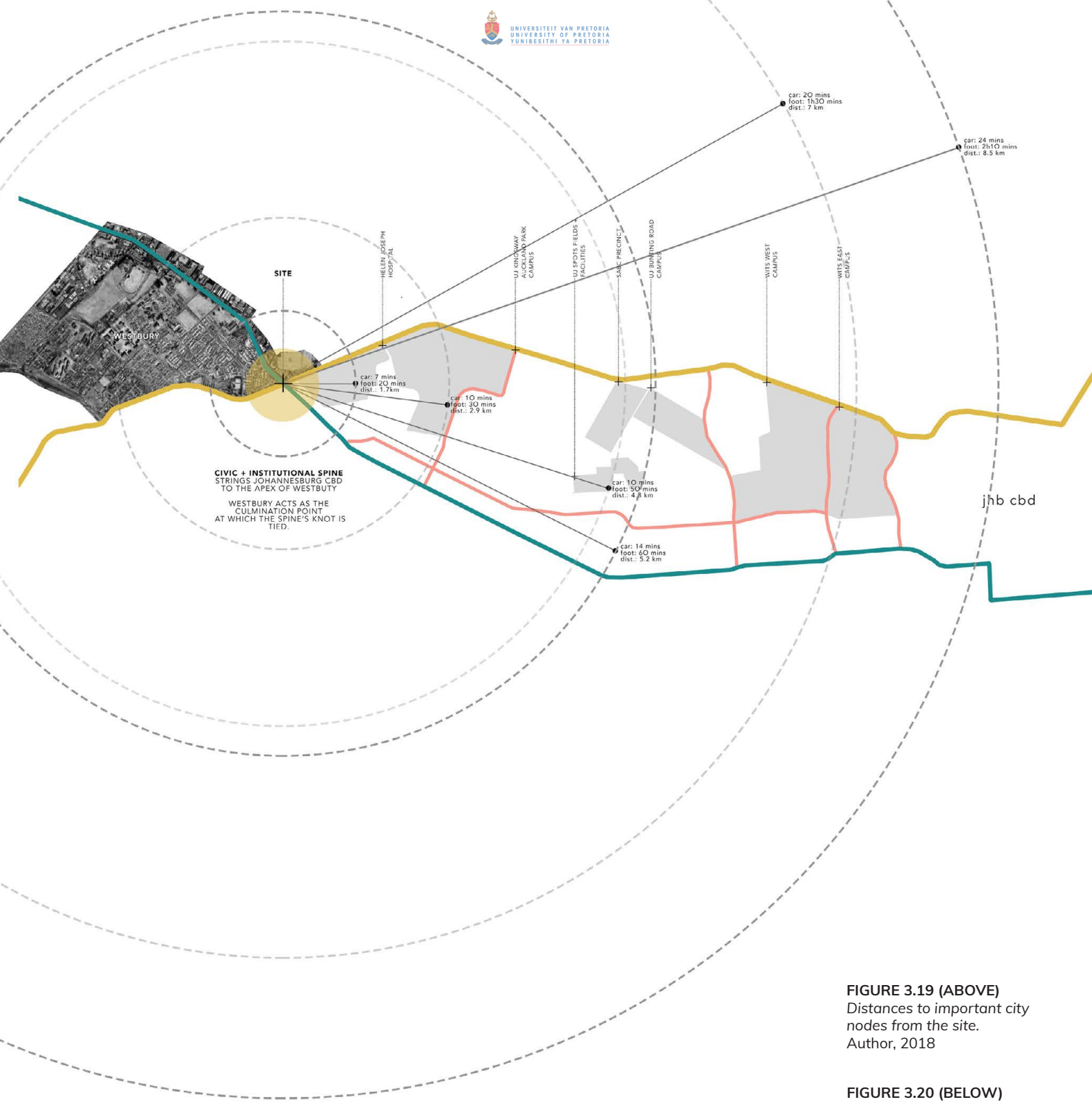
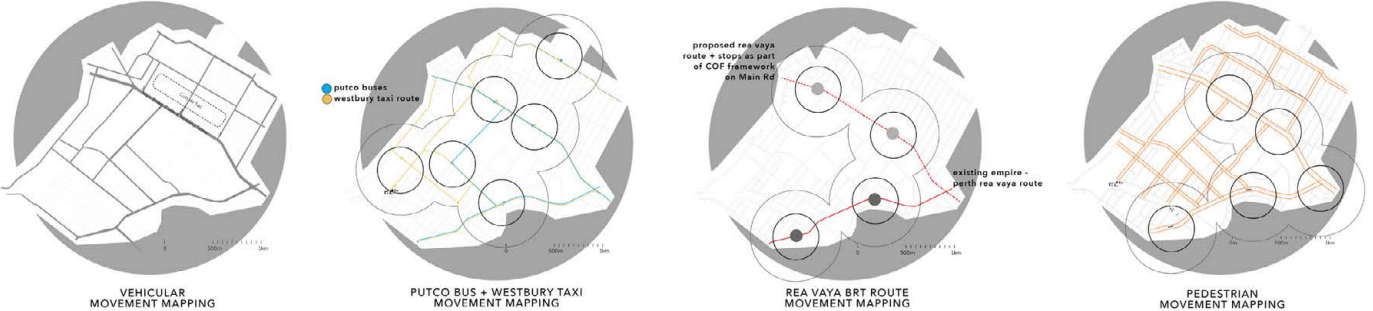


FIGURE 3.19 (ABOVE)
Distances to important city nodes from the site.
Author, 2018

FIGURE 3.20 (BELOW)
Transit Mapping within Westbury.
Author, 2018



- 01 westbury high school
- 02 westbury youth centre
- 03 moov e-learning
- 04 f.w.c skills development
- 05 youth kills development
- 06 dowling primary school
- 07 everest primary school
- 08 newclare primary school
- 09 bernard isaacs primary
- 10 westbury primary school

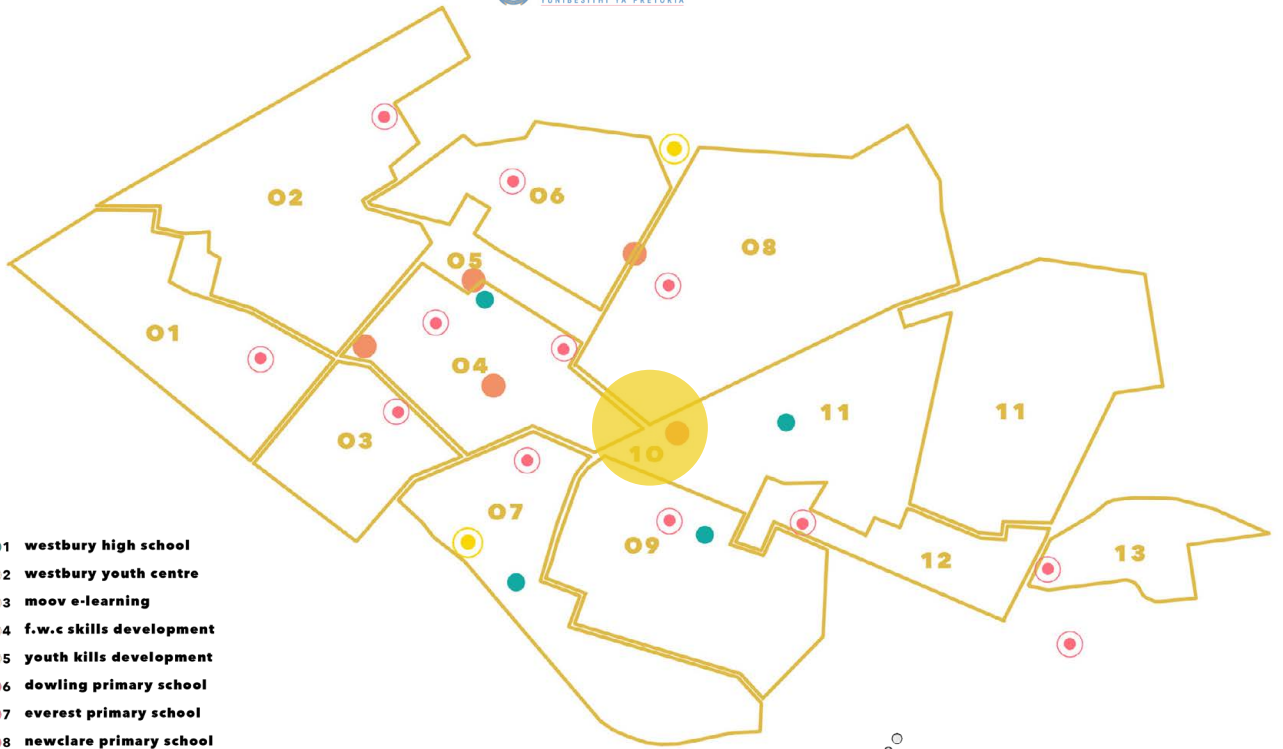
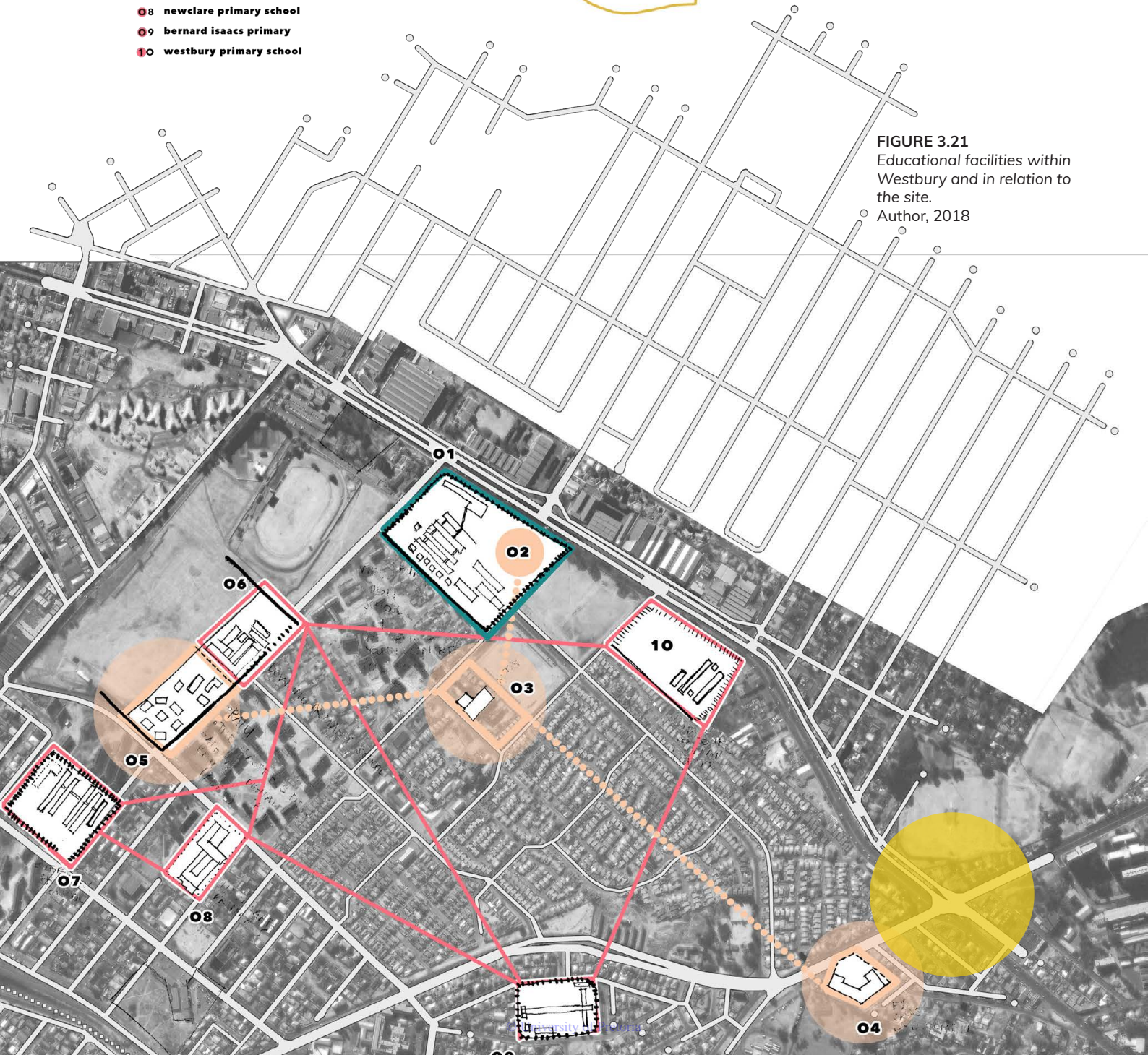


FIGURE 3.21
Educational facilities within
Westbury and in relation to
the site.
Author, 2018



URBAN ANALYSIS

NEWCLARE
(SUB PLACE WESTBURY)

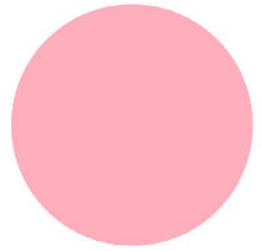
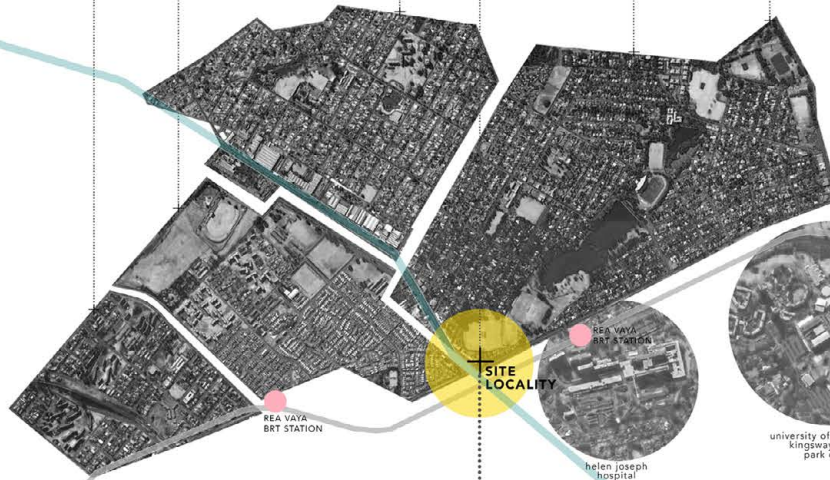
WESTBURY
(STUDY AREA- MACRO)

SOPHATOWN
(STUDY AREA- MACRO)

SITE LOCATION
(SUB PLACE WESTBURY
(STUDY AREA- MICRO))

WESTDENE
(STUDY AREA- MACRO)

AUCKLAND PARK
(AREA OF INFLUENCE)



EMPIRE - PERTH CORRIDOR

HIGH STREET - MAIN ROAD - ONTDEKKERS



university of johannesburg
kingsway auckland
park campus



SABC
precinct



sentech brixton
tower

SITE SELECTION CRITERIA FOR PUBLIC SCHOOLS:

AS PER SPACE PLANNING NORMS & STANDARDS FOR PUBLIC SCHOOLS // AUG 2011 REV 07

School sites should as far as possible be evenly distributed within the residential area. Two primary schools located next to one another should have sports grounds to separate them.

The locating of school sites should as far as possible be done in consultation with the local community.

School sites should not be located next to cemeteries, business centres, railway stations, taxi ranks, hostels, beerhalls, municipal dumps or sewerage works.

Locating schools next to high-class roads (20m wide or more) and/or high volume roads is discouraged. Entrances to school sites must comply with the prescriptions of the local authorities concerned.

School sites should in appearance be as follows:

The school buildings and sports grounds should fit onto the site in such a manner as to allow for correct orientation. (Windows and doors of classrooms and length of sportsfields to be on a north/south orientation.)

Ideally, at least 50% of the boundary of school sites should face a street front and not adjoin the backs of residential or other sites.

The slope of the proposed sites should ideally not exceed 1 in 40 and definitely not 1 in 15 over the area likely to be built on.

KZN Department of Education (2011). SPACE PLANNING NORMS AND STANDARDS FOR PUBLIC SCHOOLS. [online] Available at: http://www.kzndepartmentofeducation.gov.za/Portals/0/Infrastructure_Planing_and_Delivery/Norms_and_Standards/03%20KZNDoE%20Norms%20and%20Standards.pdf [Accessed 5 Apr. 2018].



ACCORDING TO URBANIST ROBIN RENNER'S MATRIX OF URBAN ANATOMY;

WESTBURY WOULD CLASSIFY AS:

A CENTRAL CELL [BOUND BY MAIN ROUTES ON 3SIDES]

FORMED BY TRANSPORTATION & LEGISLATION OF RESIDENTIAL FUNCTION

FIGURE 3.22
The site through an urban scale lens.
Author, 2018



Google Earth

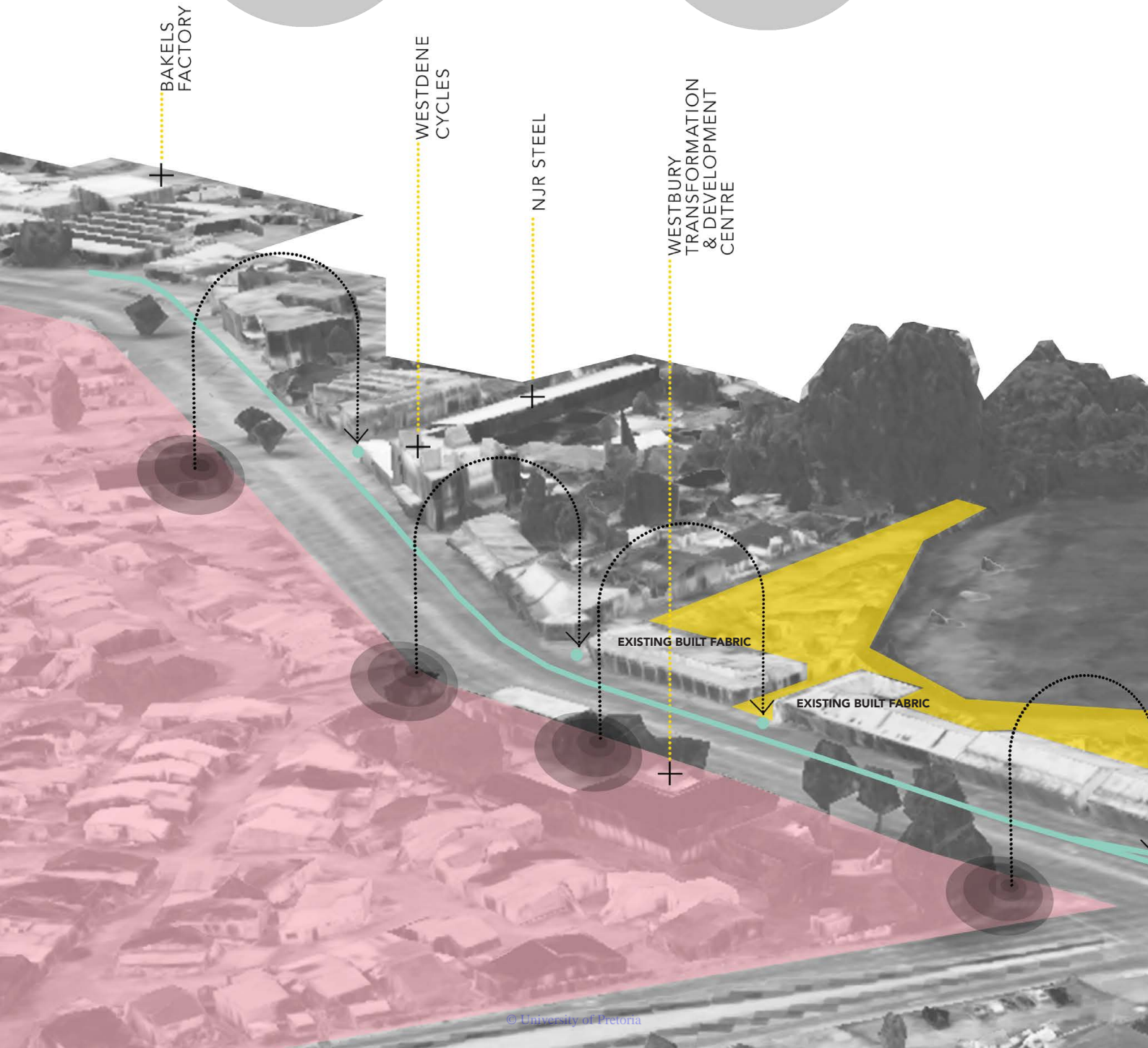
Google Earth

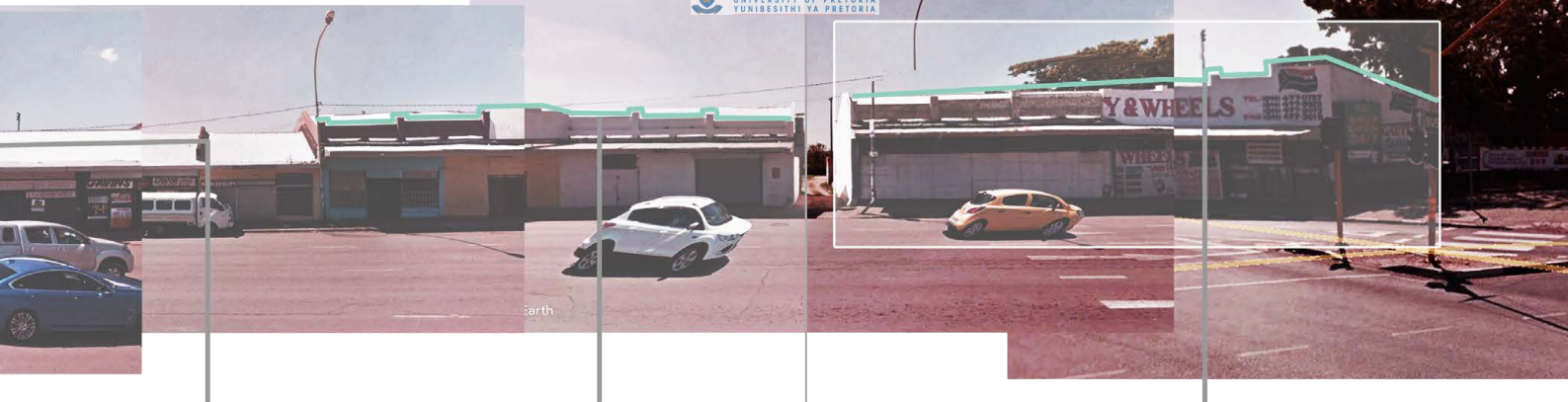
**EXISTING CONDITION :
EXISTING BUILT FABRIC**

FIGURE 3.23
The site through a
block scale lens.
Author, 2018

**DESIGN
CONSIDERATION:**
COLLONADE OVER SIDE 3m
SIDEWALK AS PROGRESSION
OF SPACE FROM STREET TO
INTERNAL SPACES -
PROTECTED SPACE -
CONSIDERATE SPACE

**DESIGN
CONSIDERATION:**
COLLONADE WITH
OVERHANG AS
INTRODUCTION TO
BUILDING, DRAW USER IN
AND THROUGH





DESIGN CONSIDERATION:

EXPRESSION OF STRUCTURE IN REPETITION AS FORMGIVING INSTRUMENT

DESIGN CONSIDERATION:

STEPPING OF FACADE UP AND DOWN TO CREATE RHYTHM AND MOVEMENT

DESIGN CONSIDERATION:

BUILDING STEPS UP AND BACK TO EXPRESS STREET CORNER

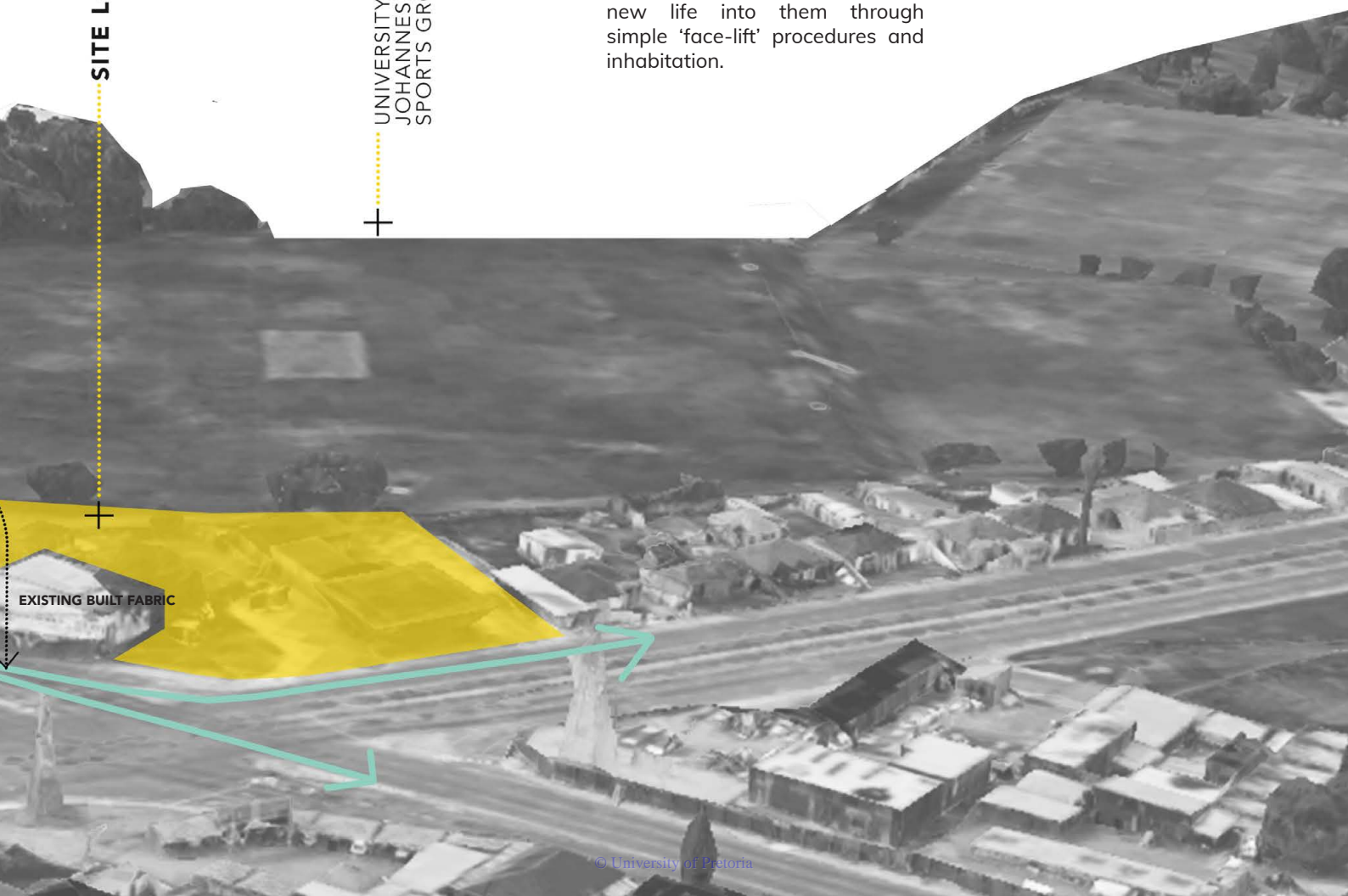
STATEMENT OF SIGNIFICANCE:

The existing built fabric, in the context of this exploration, is viewed as being the physical binding element between the site and the community of Westbury.

It is in this notion that the intention is not to infringe on these structures but instead breathe new life into them through simple 'face-lift' procedures and inhabitation.

SITE LOCATION

UNIVERSITY OF JOHANNESBURG
SPORTS GROUNDS



EXISTING BUILT FABRIC



SITE LOCATION
(SUB PLACE WESTBURY)
(SUB PLACE WESTDENE)
(STUDY AREA - MICRO)

EEZY RECYCLING &
AUTO REPAIR
AUTO/PAPER/
PLASTIC/METALS

FLAMINGO CLEANERS
ONLY OPERATIONAL BUSINESS IN
BUILDING - UNOCCUPIED SPACE

SHEBEN
ONLY OCCUPIED SPACE
-SHOPS TO LET

CASH FOR SCRAP
BUYERS OF FERROUS &
NON-FERROUS METALS

CARPENTRY/ FURNITURE
MANUFACTURE & SELL WOOD
PRODUCTS

SITE LOCATION
CARPENTRY/FURNITURE
TAKE AWAY
SHEBEN
MINI MARKET

SITE LOCATION
UNOCCUPIED BUILDING

SITE LOCATION
SPAZA SHOPS
CHESA NYAMA

TOTAL SITE AREA
AFTER CONSOLIDATION
AVAILABLE FOR COVERAGE:



ONLY PEDESTRIAN
EXIT OUT OF CELL

REDEVELOPMENT OF THE
WESTBURY TRANSFORMATION
& DEVELOPMENT CENTRE [WTDG]
(NTSIKA ARCHITECTS)

BP PETROL GARAGE
[CLOSED FRO RENOVATIONS]

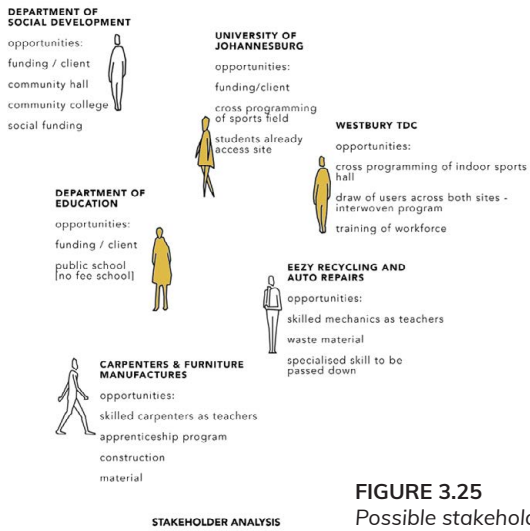


FIGURE 3.25
Possible stakeholders.
Author, 2018

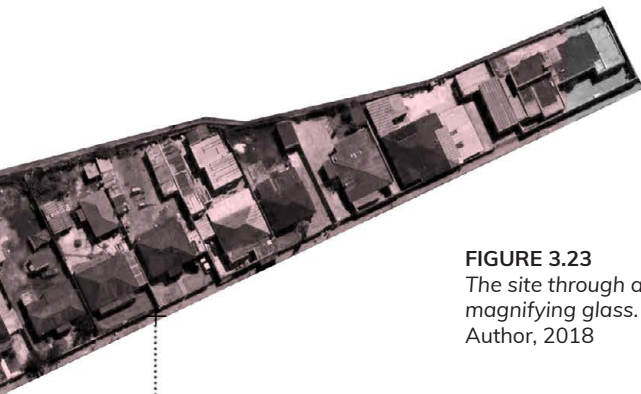


FIGURE 3.23
The site through a magnifying glass.
Author, 2018

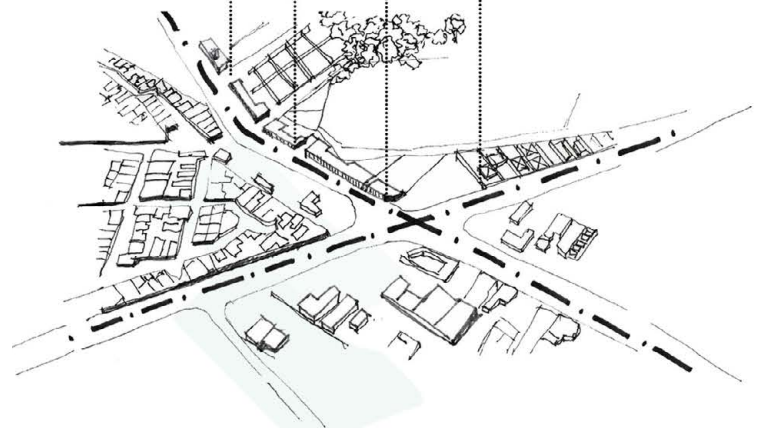
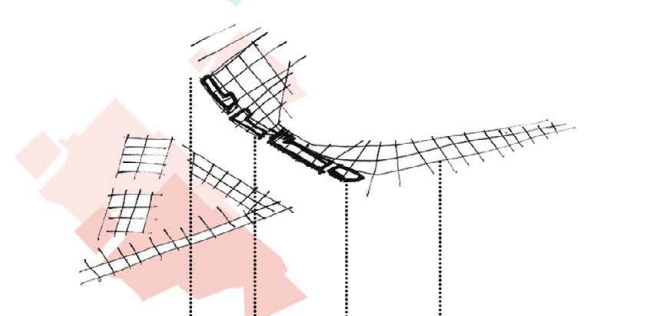
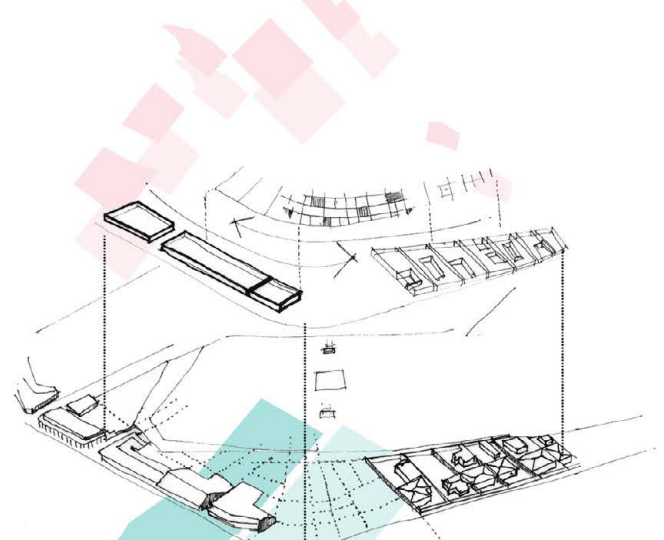


FIGURE 3.26 (RIGHT)
Understanding the site as a confluence of urban fonts.
Author, 2018

ORIGINAL WESTEDENE
SINGLE STAND HOMES

UNDERSTANDING SITE AS A
CONFLUENCE OF
URBAN FONTS



**EXISTING CONDITION :
EXISTING BUILT FABRIC**



FIGURE 3.27
The existing condition:
Existing built fabric.
Author, 2018

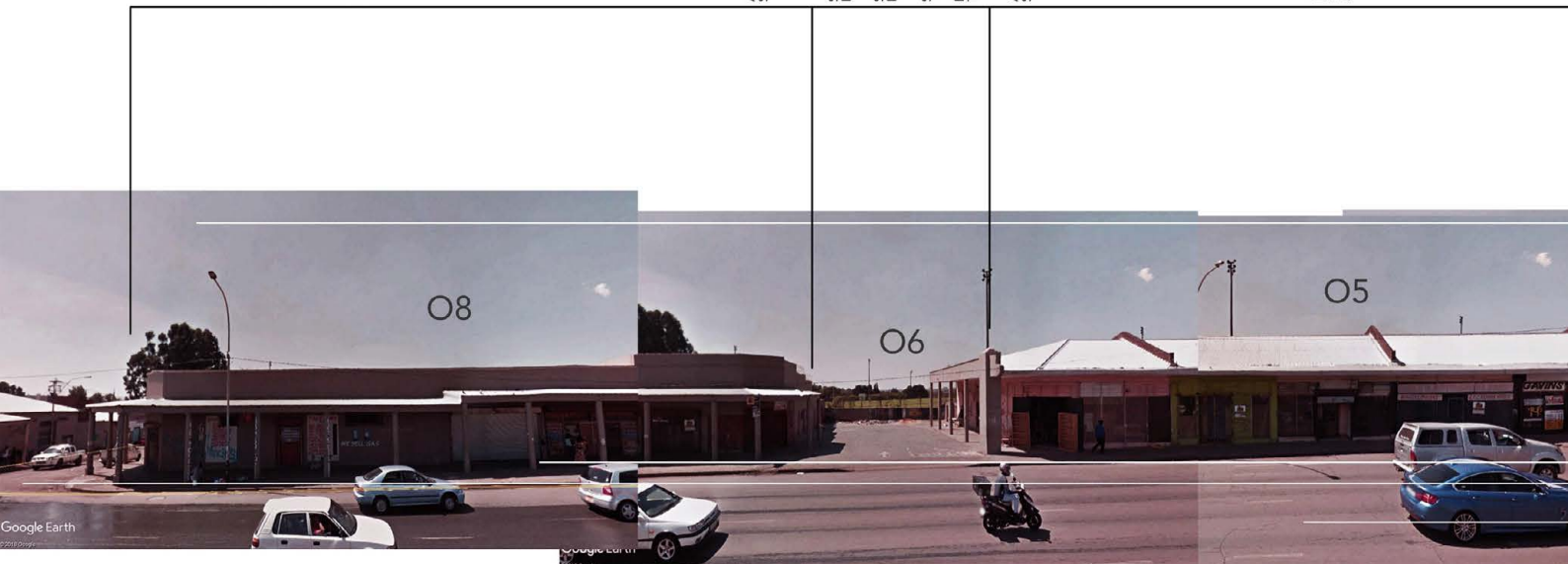
ACTIVE CORNER
SHOP - CARPENTRY

SHARED
IN-BETWEEN SPACE
SHARED
RETAIL / SHOW SPACE

SHARED TAXI STOP
PLACE OF
TRANSITION

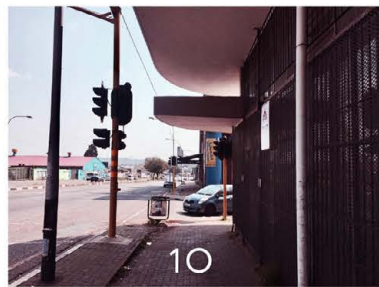
ACTIVE CORNER
SHOP - CARPENTRY

MOST OCCUPIED
SEGMENT OUT OF
ALL EX. BUILDINGS





turn to the next page to
navigate by numbers
three-dimensionally



ENTIRELY
UNOCCUPIED

LINGERING
IN-BETWEEN SPACE

ENTIRELY
UNOCCUPIED

CORNER OF
DEPARTURE+ ARRIVAL
SHARED TAXI
TRANSPORT STOP
SHARED WAITING
AREA

INTO CITY

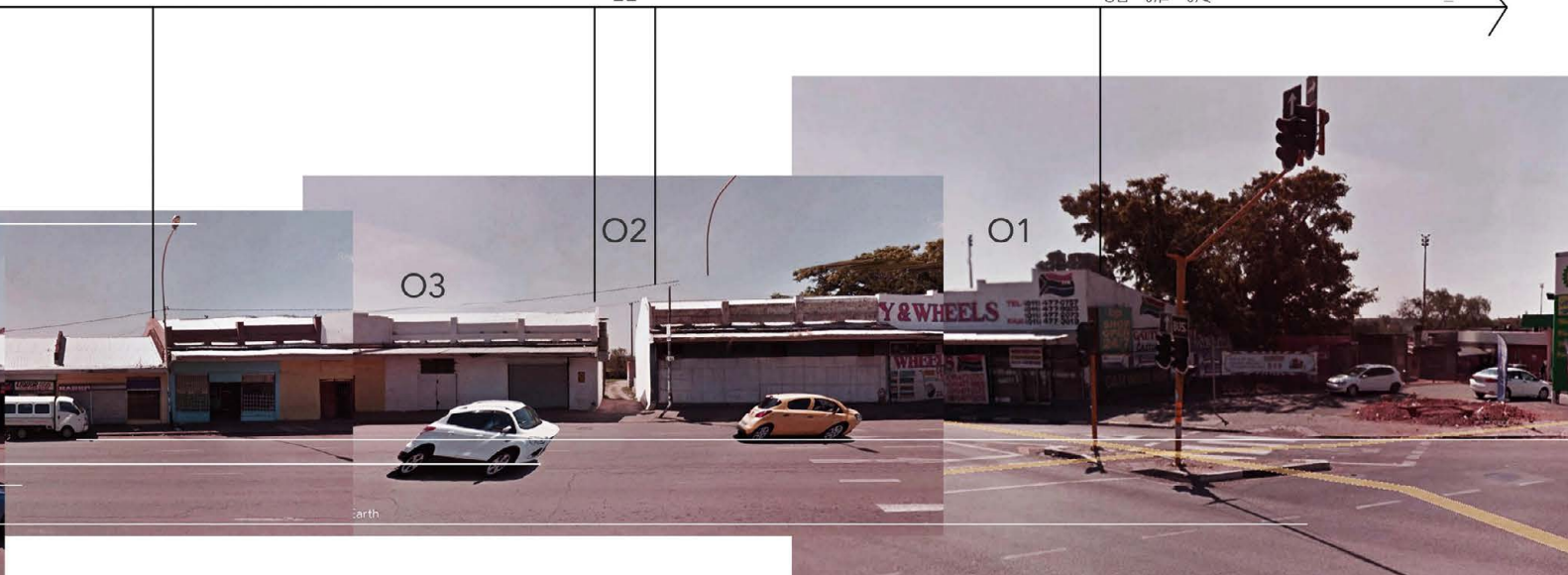
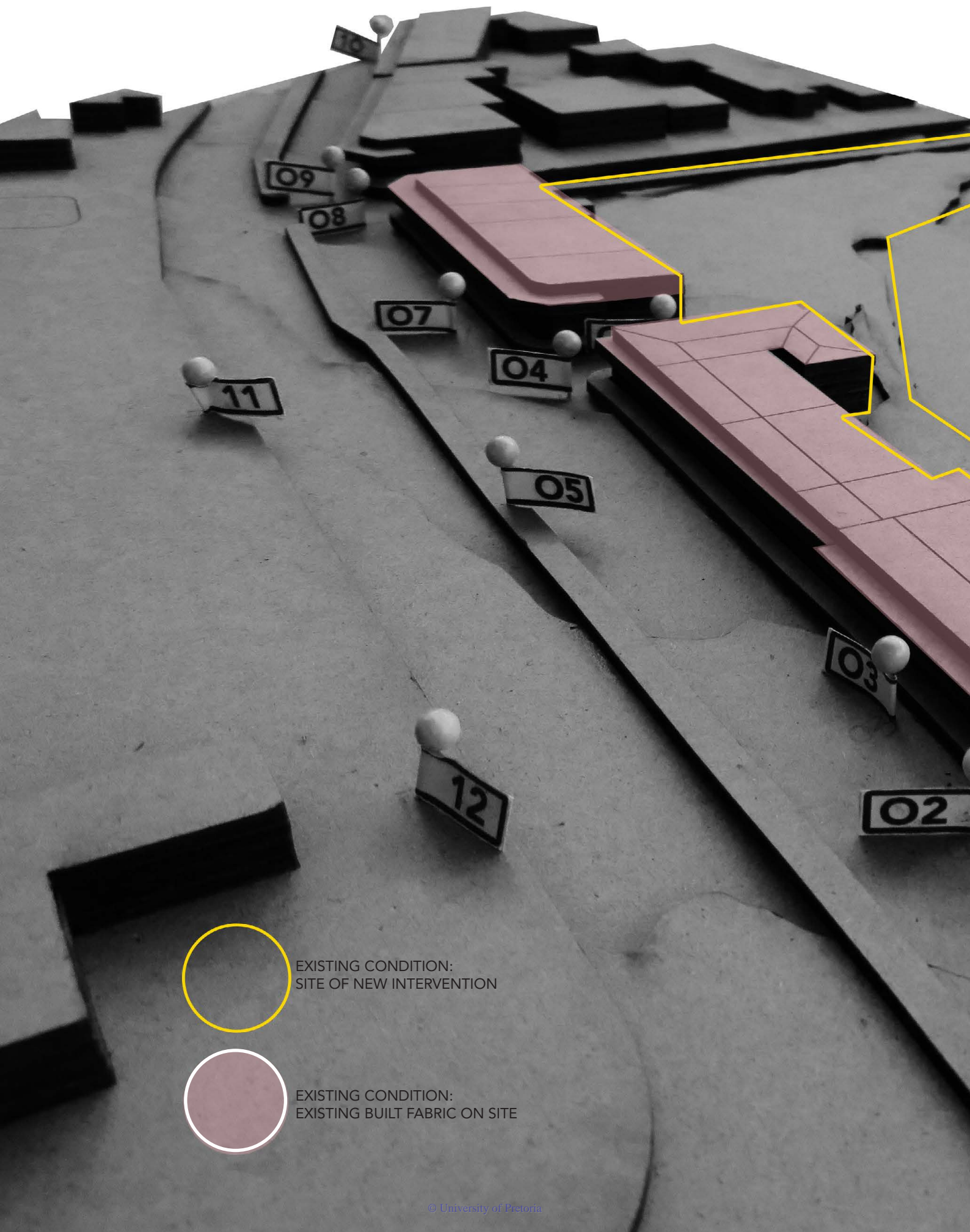
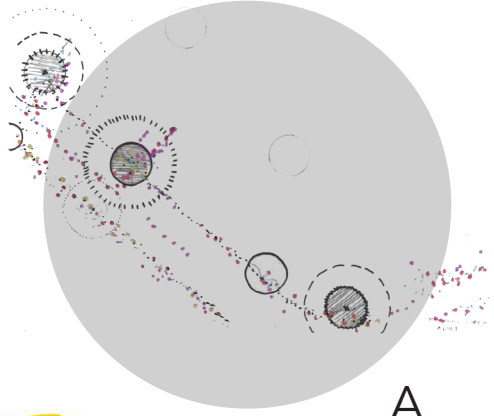


FIGURE 3.28
Navigating the existing
built fabric.
Author, 2018

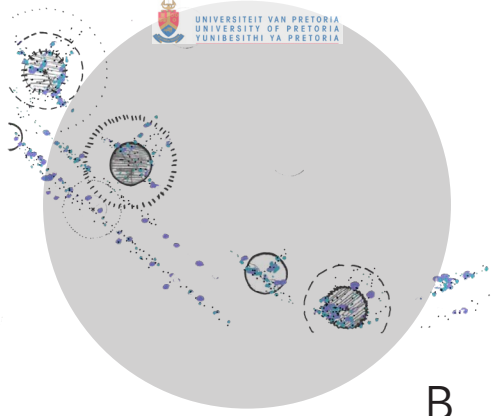




A

**M O V E M E N T :
T E E N A G E R S**

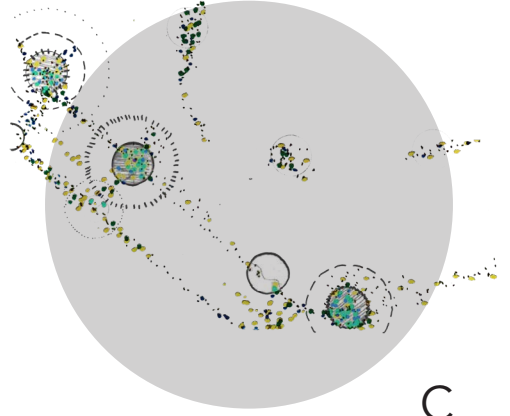
After school gathers on street corners, at spaza shops, waiting to catch the bus or taxi home after a long day. Some linger, chatting, before walking home for the night .



B

**M O V E M E N T :
A D U L T S**

Moves with purpose + direction to catch transport at the start of each day - there is a certain ritual attached to this departure and arrival each day. This adult wears the public 'guise'.



C

**M O V E M E N T :
P U B L I C**

The start and end of each day sees many feet + many faces on their way from and to home. This is simply a stop on their route to their daily destination - a goodbye.

FIGURE 3.29 (A - C)
Movement patterns
throughout the site.
Author, 2018

WESTBURY // SYNTHESIS

This chapter therefore places the research within a context that has a researched and mapped shortage of the identified niche education.

This context is the suburb of Westbury in Western Johannesburg and is typified by unique and dynamic physical and social characteristics.

The physical aspects are visible in the varying grains and scales of the urban fabric while the physiological aspects are reviewed as being tied to people and place.

The site of the intervention acts at three scales — urban, block and immediate and is further read as a point of confluence of the varying grains and scales of the surrounding Westbury fabric.

These grains seek to be woven into a mat that is both ordered and responsive. This confluence therefore introduces theories and strategies of mat-building.



- 4.1 mat-building: tying the physical and physiological threads
- 4.2 mat-building as an educational typology
- 4.3 problems of mat-building
- 4.4 contemporary commentary on mat-building

D E V I C E / / O U T L I N E

In response to the previous section of the document, this chapter sees the design principles and strategies of Mat-building as the device and theoretical approach with which the context's varying grains and scales may be synthesised into a design response which later informs the design's form and technology.

This chapter further reviews this theoretical premise in both its past and contemporary light in order to understand the point within the continuum of architectural thinking at which this research project is placed.



O4

- DEVICE -

- 4.1 mat-building: tying the physical and physiological threads
- 4.2 mat-building as an educational typology
- 4.3 problems of mat-building
- 4.4 contemporary commentary on mat-building

4.1 mat-building: tying the physical and physiological threads

The Architectural Digest of September 1974 held within it what was the first attempt of conceptualizing 'mat-building' in an article entitled "How to recognise and read mat-building" (Smithson, 1974, p. 9). Coined by Alison Smithson of Team 10, Mat-Building - a low rise, high density building type, circumscribed the concerns and interests of the Team 10 during the last decade and evolved as a "consequence of the debates within CIAM (Congres International d'Architecture Moderne) over principles of functional zoning" (Fores, 2011, p. 73).

It is essentially a critique on the functional separation of urban land uses in post-war Europe as well as the adoption of high-rise infrastructure during that same period. Mat-building, as a reaction, common to many Team 10 members, was against the orthodox zoning of cities into isolated functional areas as was also evident in the apartheid planning model, advocating that urbanism be more than an organization of buildings and activities into articulate zones with limited connectivity (Fores, 2011, p. 73). It is this inefficacy of land parcels and the monofunctionality of land use across urban blocks that also typifies the South African city.

Mat-building at its conception thus existed primarily as an alternative to the functional city described in Le Corbusier's Athens Charter (1933), in which the four functions of daily life – living, working, recreation and circulation – remained segregated from one another (Fores, 2011, p. 74).

Rather than giving it definitive form, the mat is an instrument of planning that allows the urban environment to be infused and structured over time (Avermaete, 2005). As an effort to escape earlier CIAM dogmas, the mat typology initiated an awareness of the intricacy of the urban fabric, as evident in historic vernacular environments, but "lacking from mainstream Modernism"

(Fores, 2011, p. 81). It is to this intricacy that David Viana in *African Cities: Towards a New Paradigm* (2009) also refers. He proposes that a new urban paradigm needs to be reached in which there is a mediation between patterns of regularity and segregation. The "plural configurations of the self-organised city" (Viana, 2009, p. 179) as is typical of the 'African' city is also evident in the historic vernacular environments by which Smithson is inspired.

Smithson, inspired particularly by the citadel of a typical North African city, therefore describes the mat building form as the juxtaposition to the segregation evidenced in Modernism and in the works of Le Corbusier. She instead views the mat as having the ability to "epitomize the anonymous collective..." (Smithson, 1974, p. 9) through the principles on which it is based.

This approach to spatial design is based largely on "interconnection, close knit patterns of association and possibilities for growth, diminution and change...", where the user of space "gains new freedoms of action" which in turn "enrich the fabric", knitted from these spaces (Smithson, 1974, p. 9). Mat-building thus seeks to dismantle and reframe program and composition, envisaging the architecture as a dynamic, flexible armature.

Instead of a static architectural composition, mat-architecture is the installation of a propagative structure. These propagations reference urban forms which are shaped by characteristics of the context in which they are found, as well as by specific patterns of human association and action. These elements, through being dependant on context are always open to transformation. The mat is intended to provide the flexibility needed in planning for changing programs and functions over time.

When understanding methods of mediating local and urban scale, perhaps it is the mat that is the mediating element – the 'chameleon'- that binds the micro to the macro. This new urban paradigm – "chameleonic urbanism" (Viana, 2009, p. 180) - explored by Viana points to "flexible and regenerative morphologies" (Viana, 2009, p. 179) that are both sensitive and able to adapt to multi-contexts and contingencies. Therefore, the mat exists as a logical implementation in the weaving of an urban fabric that is not only chaotic but instead a legible tapestry.

Smithson argues that through implementing mat-building, "systems will have more than the usual three dimensions," (Smithson, 1974) – space, construction and user – they will include a fourth aspect, "a time dimension" (Smithson, 1974). Therefore, mat-architecture manifests as a highly interwoven structure with the ability to evolve in time and space in a potentially unlimited manner, adapting to multiple contingencies as they would occur (Such, 2011).

This attitude toward spatial exploration first became visible in the actualization of Berlin Free University (1963) designed by Candilis, Josic and Woods (Zhu, 2009, p. 889) – the 'anti-monumental architects' (Calabuig, Gomez, & Ramos, 2013). The Berlin Free University was to become a paradigmatic example of open-plan design through matching principles of mat-building exactly. Compounding this, early examples of these mat-like buildings stemmed from the Dutch Structuralists — Aldo Van Eyck and Herman Hertzberger .

FIGURE 4
Mat-building within the
continuum of architectural
thinking.
Author, 2018

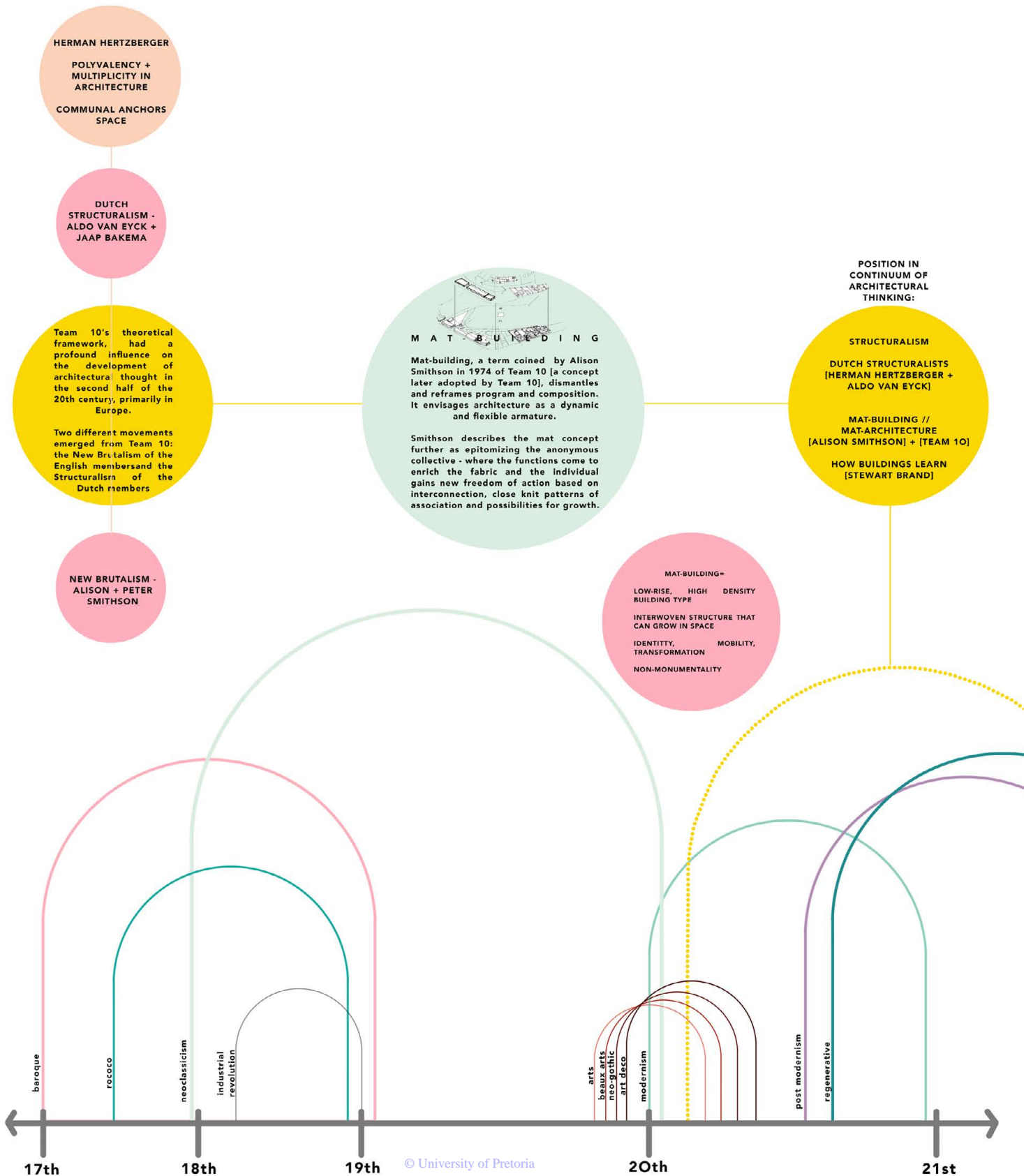




FIGURE 4.1
Free University of Berlin circulation spaces
(Praeger , 1968)

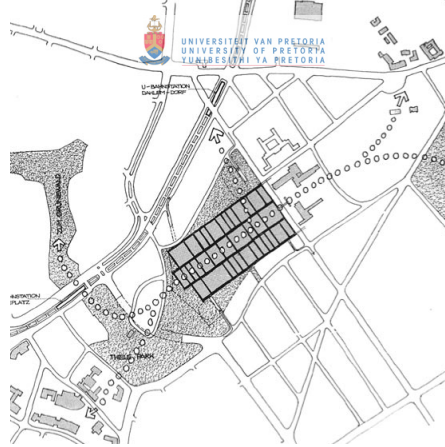


FIGURE 4.2
Free University of Berlin in context
(Praeger , 1968)

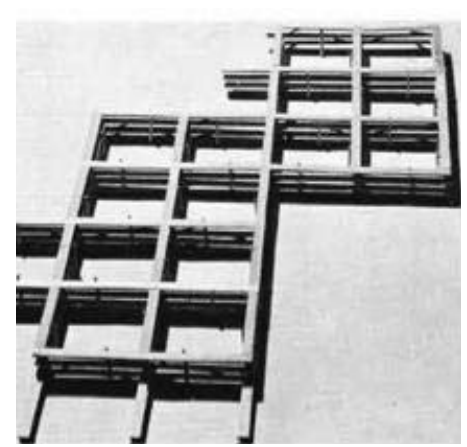


FIGURE 4.3
Frame of the Free University of Berlin
(Praeger , 1968)

A 2013 Architectural Review article, titled *Strategies of Mat-Building*, written by Calabuig, Gomez and Ramos reviews mat-building through outlining the definite strategies on which it is based, in a contemporary light. The basic hypothesis focuses on three compositional principles: “metrics, program and place (Calabuig, Gomez, & Ramos, 2013, p. 84)” — the mat as the resulting composition following the weaving of these three threads. These principles, derived from reviewing projects such as the Berlin Free University give a matrix of the success of mat-building as both an urban and architectural design tool, even within urban contemporary life.

Furthermore, it reviews these principles as a form of design guidelines for future use — principles of spatial ordering and exploration through response to place and program. These principles are as follows:

Owing to a mat-building being a large-scale, high-density, low-rise building type, the principle of metrics explores the building’s organization on an accurately modulated grid. At first glance, any mat-building’s ground floor plan constitutes a regular grid that extrapolates itself upward usually two or three stories and then planarly across the site. The Berlin Free University module is a “function of time” (Calabuig, Gomez, & Ramos, 2013) where 65,63 meters is a rough distance covered by a one-minute walk. Other mat-building precedents employ round-figure metrics which allow for ease of infill and space allocation (Calabuig, Gomez, & Ramos, 2013).

The compositional relation of program within mat-building is influenced by structuralist Claude-Levi Strauss whereby structuralism embraces social phenomena that are organized by the structure. The structure is therefore seen as a set of rules for “defining relationships and correspondences” (Calabuig, Gomez, & Ramos, 2013). In Berlin Free

University, the moments of alternative teaching essentially occur in the common areas, the in-between spaces – interior walkways, courtyards and gentle ramps between the two levels of this distinctly horizontal structure. Formal teaching takes place beyond this threshold, in more privatised space. House and city have an identical nature to which the mat-building offers a structural synthesis. The dialogue with the urban place to which the mat-building belongs and contributes is the third principle common to the strategies of mat-building. The Berlin Free University, in its response to place demonstrates a consideration of an existing grain of the urban fabric. It draws this grain into its composition and although essentially isolated from the consolidated city, it may be seen to be a city within itself through its potential to spread and weave itself between the existing isolated buildings of Berlin.

Berlin Free University was conceptualised on the notion of being able to “adapt to its surrounding context” (Fores, 2011 , p. 81) through the exploration of what was termed a ‘groundscraper’. Despite the apparent complexity of its grid, the scheme demonstrates that the scale, grain and traces of the surrounding urban fabric are reinterpreted on the ground level of the project as an attempt to harmonize the project and neighbouring urban tissue.

The circulation of the mat corresponds to the existing network of pedestrian walkways on the site and is structured on an orthogonal double-level pedestrian grid. Relationships with context are further strengthened by the sequence of interrelated open spaces that permeate the entire plan.

The organization of the structure in terms of circulation and open space ensures abundant opportunities for communication and exchange between various parts of the mat without

sacrificing their autonomy. Ample pedestrian pathways and forms of access connect clusters of rooms into a double-layer mat that extends over the entire site.

The project’s true success however lies in the juxtaposition of platforms, open spaces and covered pathways which generate a continuous and spatially diverse structure despite the horizontal stretch of the project plan. Each in-between moment in time is emphasised by the expression of the interstitial space as an important aspect to the education – learning in the in-between.

Furthermore, this project made it evident that the program characteristics of European universities in the 1960’s made mat-building a suitable approach to architecture. This is evident in the operations of the universities of the time. Correspondence between departments is prioritized in opposition to the traditional separation of faculties within their own buildings (Calabuig, Gomez, & Ramos, 2013). It is this integrated typology which South African institutions of higher education failed to adopt – faculties perch themselves on plinths contributing little to the educational environment through severing relationships between departments.

The European approach “fosters informal pedagogy” (Calabuig, Gomez, & Ramos, 2013) based on spontaneous interactions between the students as well as teachers and researchers within the in-between spaces. It also caters for increasing student numbers and the expansion of curricula which in turn require flexible structures which can be enlarged.

4.2 mat-building as an educational typology:

This notion of flexibility of space as an expression of educational typology architecture is further explored by



FIGURE 4.4
Frame of the Free University of Berlin as the woven mat between the frame (Praeger, 1968)

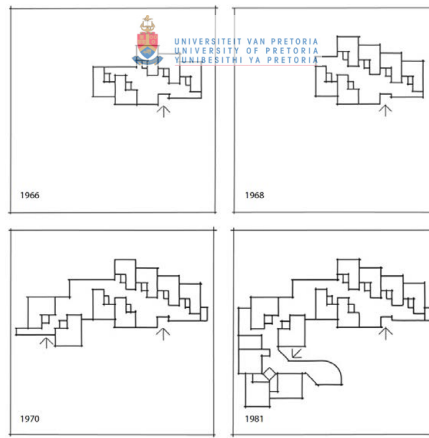


FIGURE 4.5
Hertzberger's Montessori Delft additions over time (Mc Fadden D., 2009)



FIGURE 4.6
Montessori Delft views and connections. (Buchanan P., 2012)

Hertzberger in *Space and Learning*, 2008. It is in his multiple projects, with specific reference to the Centraal Beheer Offices (1972) and his Montessori school Delft (1966), that the mat-building typology which favours the 'in-between' spaces is most evident.

The interstitial space as explored by Hertzberger, 2008, remains that which threads a sense of community throughout space – a notion that remains absent from the 'archetype' school building as evidenced in Westbury. This typology, as typified by "rows of classrooms and corridors running besides them" (Hertzberger, 2008, p. 41), is un conducive to fostering community as "corridors do not belong in schools" (Hertzberger, 2008, p. 42). It is this form of in-between space, the corridor that Hertzberger in his Montessori school addresses.

The corridor becomes extrapolated into congregational space through it assuming the role as a filtration of privacy from that which is most public, to that which is most private. He realizes the potential of the 'passage' as a "meeting place", "inspirational space", and an overflow catchment, "helping to solve the everlasting problem of cramped classrooms" (Hertzberger, 2008, p. 42).

It is in this ordering of space that Hertzberger comes to conceptualize the "school as a micro-city" (Hertzberger, 2008, p. 112). In this 'micro-city' of learning, the school is further dissected as being a confluence of an extension of home, the communal spaces as significant of the city plaza and the playground as the street, where the most private, the home, or in its other form, the classroom is distinguished by threshold.

It is through mat-building principles that a school or office environment is enabled to function as a micro-city. The grid unifies all segments of this functional microcosm into legible spaces with particular orders. It is this notion that this

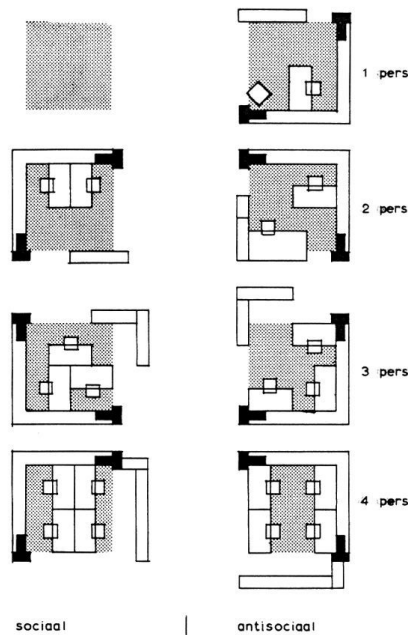


FIGURE 4.7
Centraal Beheer Offices iterative module. (Diepraam W., Aviodrome A.C. and van Doorn H., 1980)

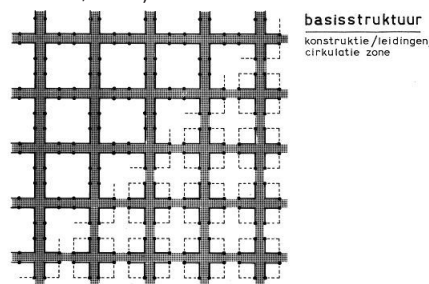


FIGURE 4.8
Centraal Beheer base / frame structure. (Diepraam W., Aviodrome A.C. and van Doorn H., 1980)

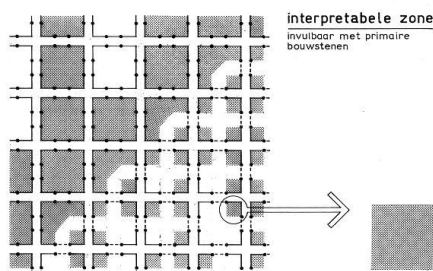


FIGURE 4.9
Centraal Beheer zone of interpretation. (Diepraam W., Aviodrome A.C. and van Doorn H., 1980)

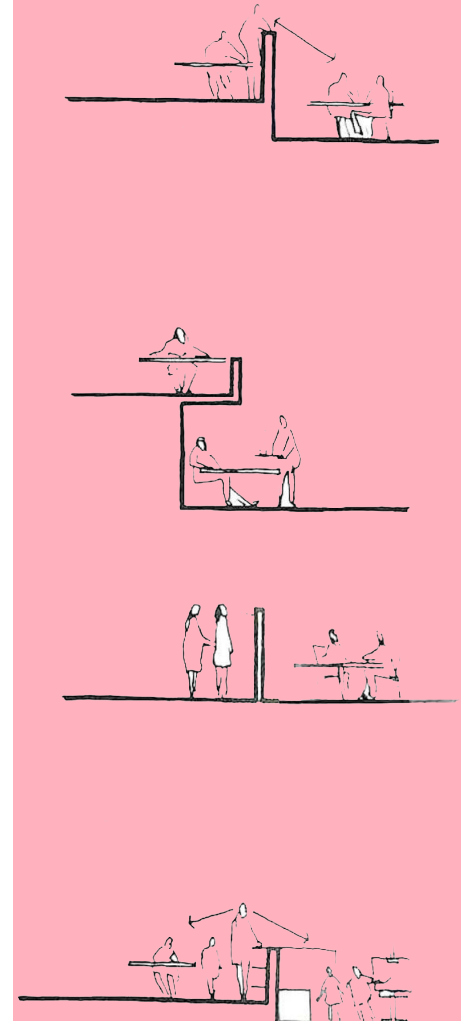


FIGURE 4.10
Analysing views and connections. (Hertzberger H., 1991)

- 4.1 mat-building: tying the physical and physiological threads
- 4.2 mat-building as an educational typology
- 4.3 problems of mat-building
- 4.4 contemporary commentary on mat-building

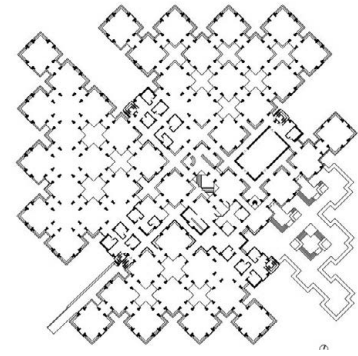


FIGURE 4.11
The Centraal Beheer mat.
(Diepraam W., Aviodrome A.C. and van Doorn H., 1980)

project, in designing a new architecture for an education typology seeks to test. Not only does the city, through the implementation of mat principles, bleed into the site but the architecture in its spatial ordering and definition comes to exemplify a city in itself. Its composition of interleading open spaces, connected by a public thread in the form of a “learning street” (Hertzberger, 2008, p. 113) which culminates at the home “recalls the public/private divide, which in the urban context serves to define responsibilities” (Hertzberger, 2008, p. 113). Children play in the streets and parks – the in-between spaces – and return to their privacy, the ‘classroom’ when necessary.

As Hertzberger explains and explored in the Delft Montessori school, “within a building, this principle can in itself easily be interpreted by the use of soaring heights and daylight from above, these being primary means of reinforcing the association of the city” (Hertzberger, 2008, p. 127). This technique of imitating city through height and light simultaneously encourages density and therefore is applicable in concurrently ‘building city’ on an urban scale. It is also this level of urbanity that this new educational typology seeks to explore.

A further characteristic of functional city is the multiplicity of uses. In application to the micro-city of a learning environment, a street becomes the classroom while a classroom can become the public space depending on its spatial articulation. The current loss of faith in the classroom, as is typified by a four walled enclosure, is owing to a shift in thinking from it being more than the sole space for providing education.

However, the opposite extreme to enclosure - fluid space - is often more limiting. As Hertzberger explains, this approach to the abandonment of the classroom typology “fails to take account of the fact that such a blurring of identities means there is nothing left

to exchange... Nothing has its own place anymore” (Hertzberger, 2008, p. 35). He further goes on to explore that fluid space produces ‘nomad’ users who cannot find orientation as it is not “just buildings that need structure; people too need a structured environment in which each person can feel at home (Hertzberger, 2008).

Therefore, multiplicity, or as Hertzberger in *Lessons for Students in Architecture*, 1991, terms it – polyvalence (Hertzberger, 1991) – comes through determining the enclosure while giving it space to breathe and adapt. Fluidity in design is essentially enabling space but not place and produces architecture that is generic. The making of place is introduced through definition and determinant design.

Hertzberger’s Centraal Beheer Apeldoorn complex, 1972, employs these basic principles of multiplicity. The plan’s intention maximises human-interaction and dialogue through exploring the module which is then woven into a mat. This mat varies between open, interstitial space and designated office space. The structure however, as typical of its time, is fairly rigid. It limits adaptability to a 9 by 9-meter module with no opportunity for expansion. Furniture is therefore the element responsible for adaptability. It is in this case that the design is perhaps too determinant.

The concept of ‘polyvalence’ or ‘polyvalent space’ is directly applicable to spaces that can “generate specific responses to each new situation” (Hertzberger, 2008, p. 109). Freedom and reduction of generic space are therefore in contrast to concentration and addition as tools for place-making in order to “increase the spatial quality of polyvalence” (Hertzberger, 2008, p. 113).

Within the project context, it becomes necessary to make ‘place’ as Westbury is typical of a community that has been deprived of place, while accustomed to

space, owing to the historically unjust landscape in which it exists. The mat approach thus offers this sense of structuring to space as it inherently implies an infill of structure, with this infill defining space and threshold. This is the approach that the design of a new educational structure assumes, where each definition of space has a particular identity but owing to its definition allows for a level of multiplicity.

4.3 problems of mat-building:

Mat-typologies have been realized in large-scale institutions, such as the Free University and Massachusetts Institute of Technology, as well as in housing projects, such as the Agricultural City by Kisho Kurokawa (1960). The typology has been recently re-introduced in Foster and Partners’ plan for the Masdar City in Abu Dhabi (2007-2023) as a structural blueprint for sustainable development.

The typology has thus been mainly applied in singular institutional projects, and it remains unclear whether mats could be equally suited to more decentralised forms of development that are shaped by multiple owners over time. The case of Masdar City, which will need to transcend multiple institutions, might provide a partial answer to this question. Yet, it is also unclear whether mat-structures are bound to remain unique and rare for largescale development, or whether their benefits can attract larger interest and adoption in dispersed, small-scale developments in rapidly urbanising cities.

Due to a number of challenges, mat buildings have not yet entered mainstream urban design practice. The need for costly up-front infrastructure investment compared to conventional patterns of development, and the procedural difficulties involved in separating the permanent infrastructure from the more flexible and adaptable

primaire bouwstenen

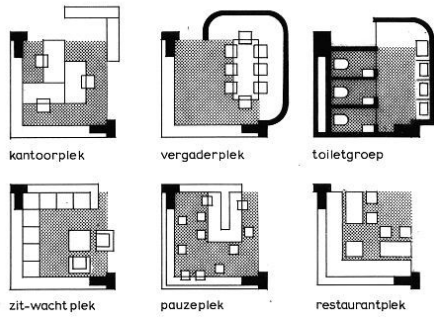


FIGURE 4.12
The *Centraal Beheer* module of spaces. (Diepraam W., Aviodrome A.C. and van Doorn H., 1980)

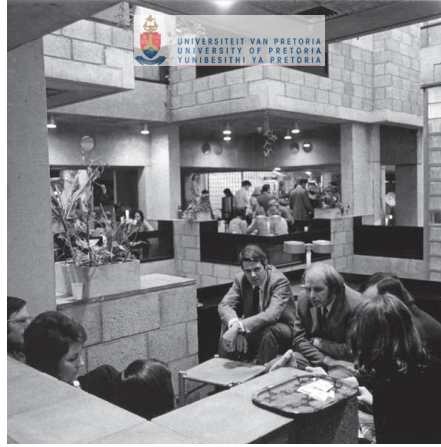


FIGURE 4.13
In-between space within *Centraal Beheer*. (Diepraam W., Aviodrome A.C. and van Doorn H., 1980)



FIGURE 4.14
Masdar City plan — Contemporary mat-building. (Foster & Partners, 2017)

parts, have so far limited the widespread adoption of mat structures. More research is required to understand and desirably overcome these challenges.

It is this niche, between urban and block scale, in which this typological exploration seeks to sit. The project will exist not at urban/institutional scale but instead at a local site level where the existing built fabric on site requires a vertical extrapolation of the mat instead of its usual planar conception. The exploration of this approach to architecture therefore seeks to test its success on a lesser scale than previously implemented in projects such as the Berlin Free University.

4.4 contemporary commentary on mat-building:

In current architectural discourse, mat-building has been revived under a term coined by Yuan Zhu, 2009, as ‘neo-mat-building’. This revival, although it contains slight alterations to the existing principles on which mat-building is founded, extrapolates the notion of an architectural armature to further extents. Zhu, in outlining the point from which neo-mat-building was conceptualized, describes mat-building as “legible, orthodox, and static” (Zhu, 2009, p. 890). This mat is then envisioned as being “disentangled and rewoven into a new state of flux and multi-layered complexity” (Zhu, 2009, p. 890) in the form of a neo-mat.

According to Hashim Sarkis (2001), owing to mat-building’s resilient principles of design and construction, it lends itself to reiteration. Its concrete grounding answers “to the recurring calls for efficiency in land use, indeterminacy in size and shape, flexibility in building use, and mixture in program” (Sarkis, 2001). It is these problems that continue to preoccupy contemporary architecture that the original mat typology appropriately addresses.

In progression of mat-building’s design informants, the neo-mat shifts from “individuals to collectives, from objects to fields and from static to dynamic” (Zhu, 2009, p. 890) through occupying the in-between to architecture and urbanism. However, it may be argued that mat-building, even though orthodox, successfully started to mediate these scales through absorbing the urban into the architectural.

Occupying the realm of the in-between allows for these shifts as described by Zhu, as it defines varying grains and scales of development – a notion that is pertinent in trying to mediate the Westbury context in relation to the site. Furthermore Zhu, 2009, explicitly states the mats success, as being “conceived as in-between condition or a third place which overcomes time..., transpose[ing] insignificant insularities into meaningful complexities” (Zhu, 2009, p. 891).

Stan Allen , 2001, also recently recommended mat-building principles to meet challenges of contemporary architecture and urbanism. He reviews mat buildings as being characterised by “a shallow but dense section activated by ramps... [with a] unifying large open roof, a site strategy that lets the city and the landscape flow through the project, a delicate interplay of repetition and variation and the incorporation of the time element as an active variable in urban architecture” (Allen, 2001).

It is these aspects of a mat-building’s design in particular that make it an appropriate tool for contemporary design as it sees the architecture as a canvas for every future possibility. It therefore strips itself down to its essential components, in their most basic form, in order to achieve a longer lifespan – principles relative to contemporary theories of resilience and regenerative design.

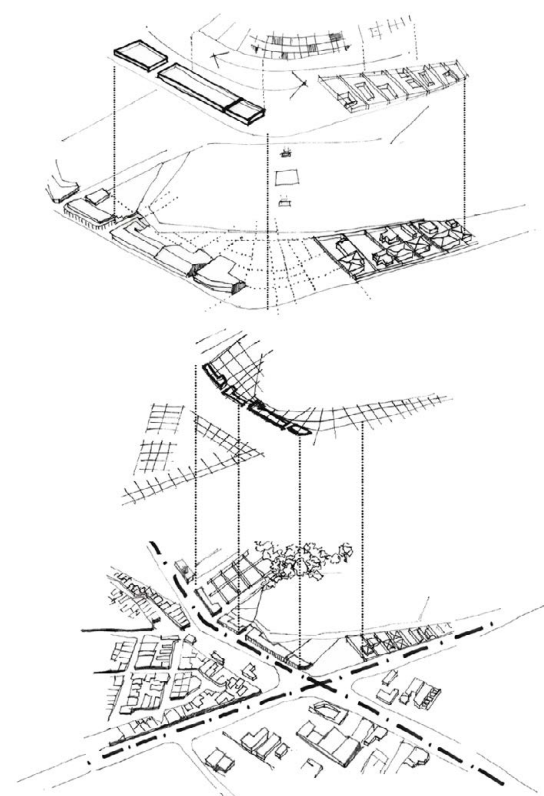


FIGURE 4.15
The mat in relation to the site. (Author, 2018)

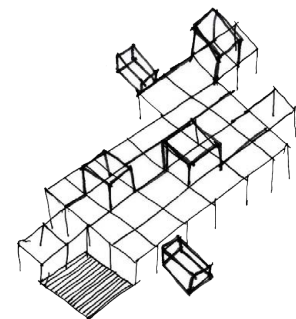


FIGURE 4.16
The base structure of the mat — the grid. (Author, 2018)

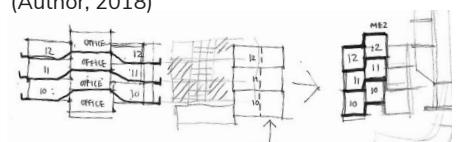
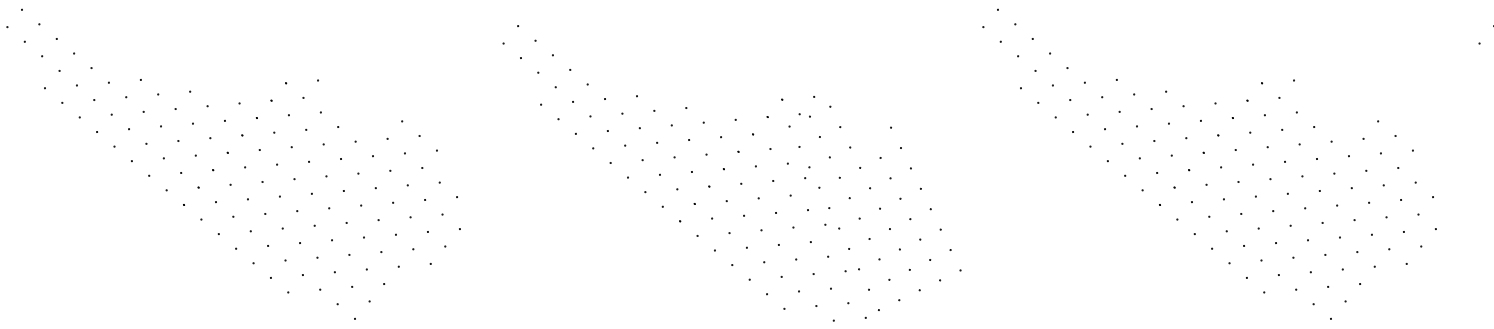


FIGURE 4.17 (BELOW)
Exploring the possibilities of the grid.
(Author, 2018)



D E V I C E / / S Y N T H E S I S

This chapter therefore explores mat building as the device with which a confluence of the varying urban fabric within Westbury may be reached. This tool, owing to the strategies and design principles on which it is based is further appropriate in allowing for a flexibility of space and designing the in-between spaces. Both of these aspects become important components toward the design of a new architectural educational typology.

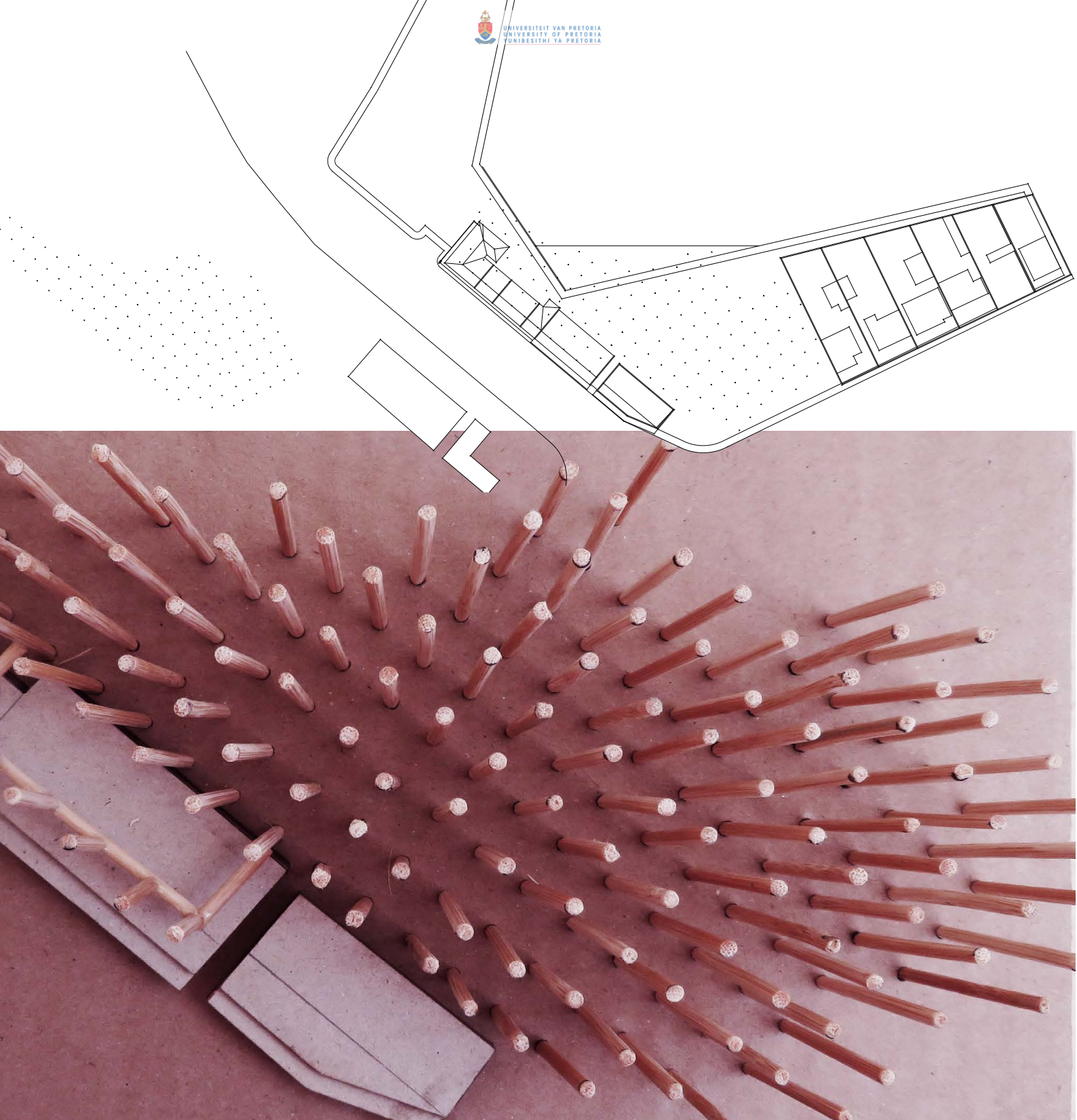
Mat-building is also understood as a grid which is then extrapolated into a framing system with the intention of infill over time. It is these aspects of a mat-building's design in particular that make it an appropriate tool for contemporary design as it sees the architecture as a canvas for every future possibility. It therefore strips itself down to its essential components, in their most basic form, in order to achieve a longer lifespan of the structure.

The grid is therefore the primary ordering device — the first strand of the mat. This grid in the context of the immediate site is explored in various iterations where aspects such as potential materials, flexibility, spatial ratios and programmatic requirements are considered.

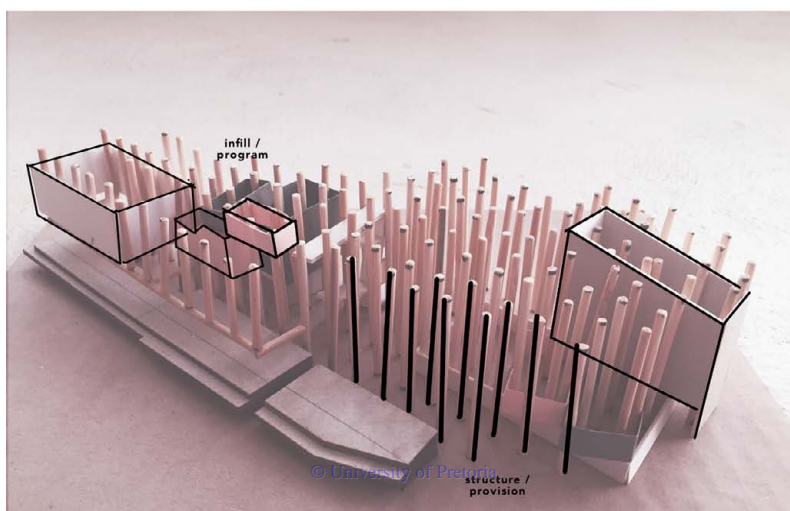
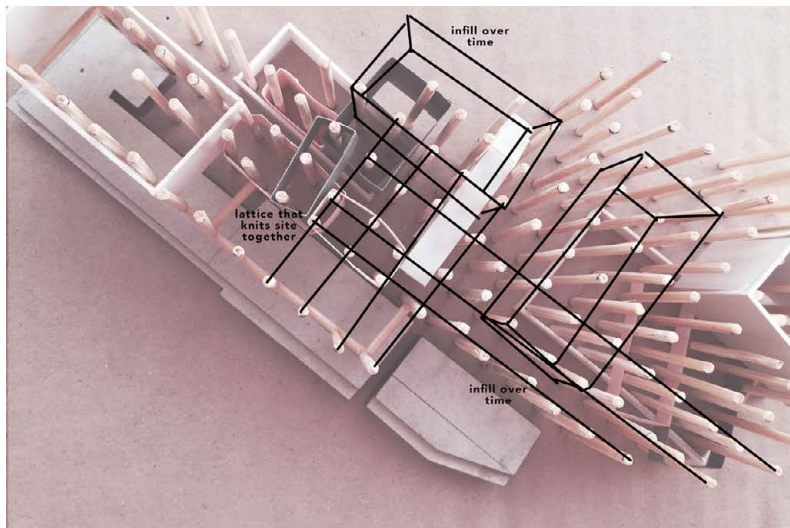
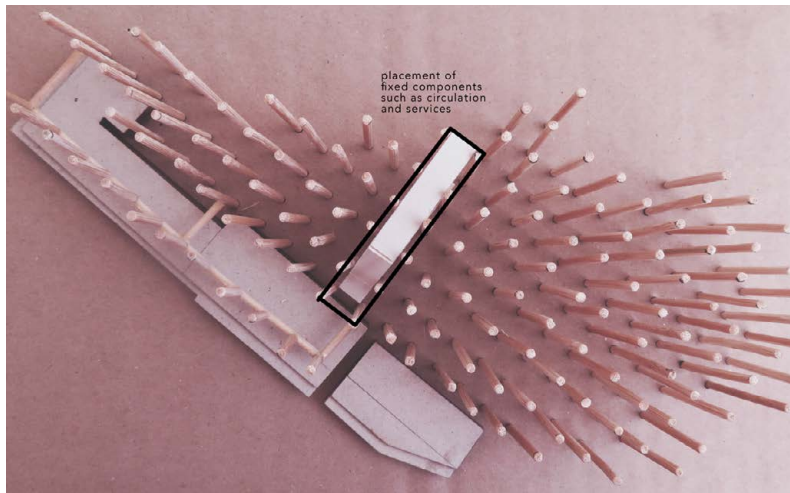
The decided iteration is the 6 by 6 meter module which responds directly in its placement to the existing built fabric on the site.

Furthermore, this grid is understood as the conceptual 'printers tray' into which all programs and spatial modules fit.

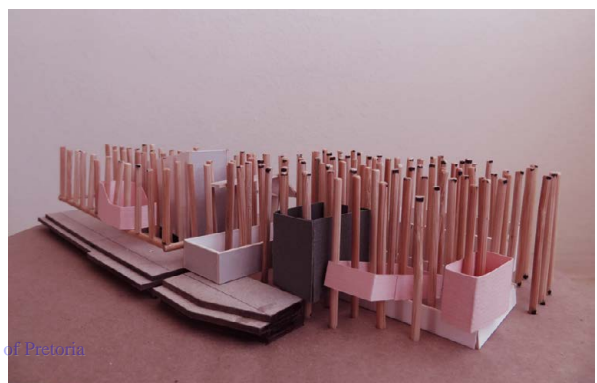
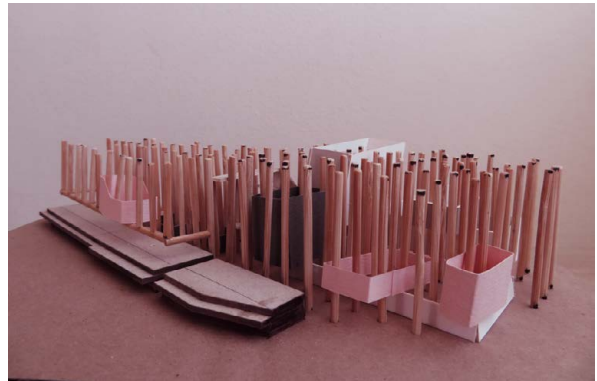
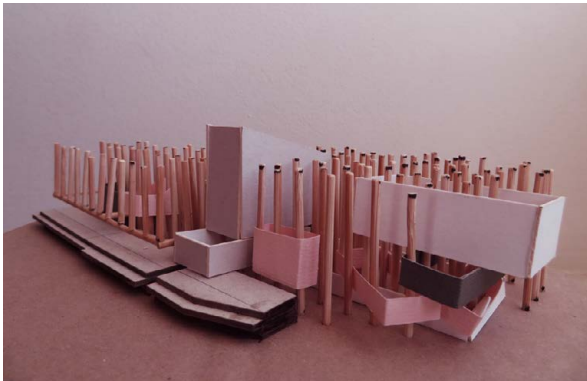
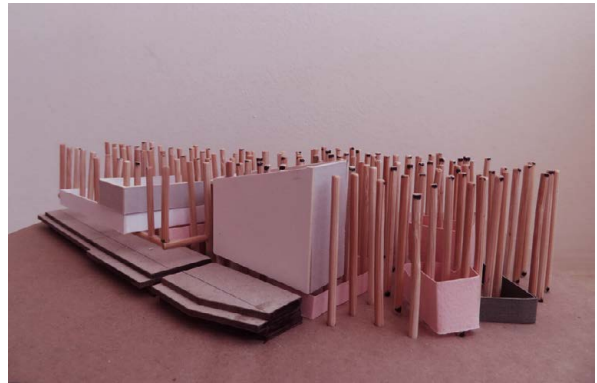




d.i.y



c.i.t.y



- 5.1 defining and designing the 'in-between'
- 5.2 translating thoughts into space
- 5.3 constructing space
- 5.4 program in space

IN - B E T W E E N // O U T L I N E

'In-between' explores components of place-making and design informants that are integral in being a programmatic and contextual design response. These principles therefore become the guiding force and conceptual drivers of the design and come to exist through many design iterations in order to achieve the most sensitive and applicable design product that answers questions posed throughout the document.



O5

- IN-BETWEEN -

- 5.1 defining and designing the 'in-between'
- 5.2 translating thoughts into space
- 5.3 constructing space
- 5.4 program in space



FIGURE 5
Sou Fujimoto's Toilet in Ichihara.
(Iwan Baan, 2013)

5.1 defining and designing the 'in-between'

One of the fundamental acts of architecture is to define space through separating one space from another, simultaneously differentiating an inside and outside. However, beyond this, there is a third space, one that is the intermediate to both differentiated phases. This may be termed the 'in-between' space.

While the enclosures of architecture enhance shelter and habitation, the outside space is left to that which is natural and ungoverned (Krause, 2012). The relationship between these two entities is introduced through openings, visual axes and materiality (Shahlaei & Mohajeri, 2015, p. 76) and this therefore relates the dependency of the inside on the outside.

The interplay of the 'in-between' introduces the notion of transitional space (Oldenburg, 2009). This third entity defines threshold, circulation and a line of tension between the definitive inside and outside spaces. In the case of Japanese architect Sou Fujimoto, this in-between becomes an "amplified dichotomy" (Knott, 2015, p. 1) in which he begins to view a series of simple, self-evident, dual oppositions – 'nature versus architecture', 'inside versus outside', 'complexity versus simplicity' (Knott, 2015)– and pushes these oppositions to an extreme, just short of parody. It is at this extremity that these oppositions are then implemented as design tools successfully and evocatively. This phenomenon is evident in his *Toilet in Ichihara*, Japan, 2013, which explores the conflict between private and public as well as the interplay between the two.

A simple cubicle constructed entirely from glass is placed in a garden. The garden is then entirely enclosed by a high fence, with a lockable gate. It is in this moment that the project confronts private as enclosed and public as open, where a private action becomes performative yet is still secured by the

enclosure of the locked gate. Above this, the enclosure allows for contemplation, a moment of solitude and pause in the garden, free from disturbances. There is a subtle humour and playfulness present in this interpretation of 'in-between' which Fujimoto achieves through an understanding of what defines public and private.

Furthermore, Fujimoto's success lies in establishing simple dual oppositions at the starting point of each project, allowing the testing ground to become the space in-between. It is this middle ground that is the place of complexity (Knott, 2015).

Through developing an understanding of the nature of inside and outside space, and how the connection between these two – the 'in-between' – affects their relationship, there is an appreciation for space-making through the use of boundaries which control privacy, movement and lines of sight (Shahlaei & Mohajeri, 2015, p. 74).

Beyond this, the in-between space is evidenced to influence the climatic control as it impacts the thermal comfort of the internal spaces through extending the shaded area over the bounding wall. This is particularly evident when circulation routes or atrium spaces are typical of that which is 'in-between'.

These definitions of transitional space, although referenced in connection with a building may also be applied at varying scales. 'In-between' space acts at 3 levels of space making, making reference to the same levels at which the site of the project acts – urban, building and immediate.

At urban scale, this notion of in-between has been previously explored by Ray Oldenburg, an urban sociologist who, in his novel *Celebrating the Third Place*, 2009, explores the importance of informal public places for the benefit of



FIGURE 5.1
The moment of conflict.
(Iwan Baan, 2013)

a neighbourhood's civic engagement, sense of community and democracy (Oldenburg, 2009). He describes these meeting places, such as hairdressers, corner shops, bars and community centres, as 'third places' or 'urban in-betweens'.

He further explores the following points as enablers of communality in 'third places' and states that places can only be truly public if they embody these principles:

- Free to use and available to all.
- Food and drink available as this influences people to linger.
- Highly accessible.
- Autonomy of space to involve regulars – those who habitually frequent the space.
- Both old friends and new encounters should be encouraged there.

Fujimoto's *Serpentine Gallery*, 2013, in London's Kensington Gardens is one particular evidence of an urban in-between space which achieves Oldenburg's principles with very little effort. His design focused on the artificial, expressing and embracing the chosen grid "in its modernist purity" (Knott, 2015, p. 2). By multiplying and overlaying the same 400mm grid, Fujimoto magnified its reading, altering it into a white haze. Where the project moved beyond folly or pavilion was in the implementation of simple polycarbonate discs as shelter and the considered placement of 'acrylic terraces to define space, platform and seating: the bare essentials to social space" (Knott, 2015, p. 2). What Fujimoto edits from the grid he also adds to it in its depth in order to create what he terms 'half grid and half soft-blurr'. Through this, the intention is to experience the natural as a haze through the artificial, where the artificial is only an in-between space.

At building scale (Giannini, 2015), and for the purpose of this research project, the 'in-between space' is in reference



FIGURE 5.2
The conflict between private and public.
(Iwan Baan, 2013)

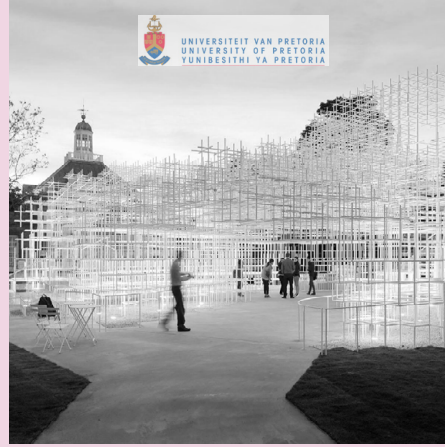


FIGURE 5.3
The Serpentine Gallery within the haze.
(Iwan Baan, 2013)



FIGURE 5.4
Social space within the haze.
(Iwan Baan, 2013)

to an architectural educational typology or office. Designing and extending the spaces between two destination points, programs these transitional spaces into points of quirky, unexpected meeting and interaction. These 'in-between' spaces therefore adopt the nature of a film-set 'meet cute' – a scene set for the purpose of the meeting of two people, unexpectedly and often romantically.

These spaces if allowed to be irregular and even inefficient may offer great opportunities to extend work beyond the office or learning space into a secondary realm of these definitive spaces.

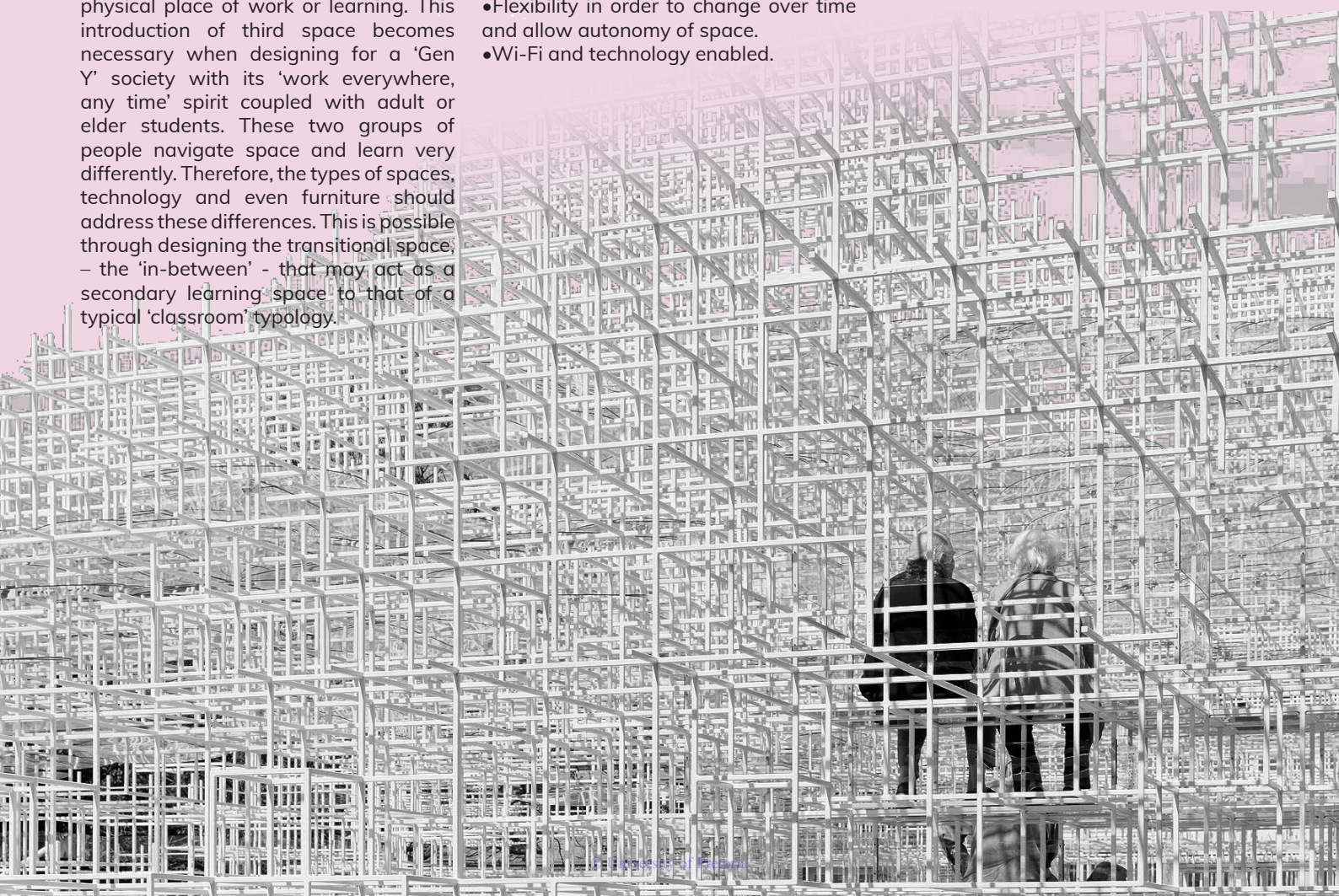
The 'in-between' at an immediate scale refers to the designated area or physical place of work or learning. This introduction of third space becomes necessary when designing for a 'Gen Y' society with its 'work everywhere, any time' spirit coupled with adult or elder students. These two groups of people navigate space and learn very differently. Therefore, the types of spaces, technology and even furniture should address these differences. This is possible through designing the transitional space; – the 'in-between' - that may act as a secondary learning space to that of a typical 'classroom' typology.

Furthermore, in the same manner that Ray Oldenburg explored the 'urban in-between' through principles of design, the making of space to include the intermediate may also explore the following guidelines (Giannini, 2015) in creating successful meeting spaces:

- Be free to use and available to all as satellite spaces.
- Available throughout the day or night.
- Designed as alternative work or learning settings. The desk is dead.
- Enable informal/formal meetings or collaborative work.
- Enable individual/break-away spaces with some acoustic and visual privacy.
- Be located in order to have easy access, natural light and multiple views.
- Flexibility in order to change over time and allow autonomy of space.
- Wi-Fi and technology enabled.

It is through implementing these principles that an alternative typology evolves that includes all spaces as learning or work spaces in which ingenuity and innovation can thrive owing to the design of space to encourage meeting. Meeting and human interaction are therefore at their height within the 'in-between'.

FIGURE 5.5
The inhabitable
three-dimensional grid.
(Iwan Baan, 2013)



- 5.1 defining and designing the 'in-between'
- 5.2 translating thoughts into space
- 5.3 constructing space
- 5.4 program in space

5.2 translating thoughts into space

The 'in-between' typology is therefore further understood in categories of informants which begin to shape it into an architectural response. These informants are directly influenced by the texts previously explored — program, context, mat-building and the in-between — in order to achieve an architecture that is fundamentally attached to place and a specific community through providing an appropriate programmatic response.

These informants take form as:

- [A] **The Existing Condition**
- [B] **The Topography or Site**
- [C] **Flexibility or Program**
- [D] **Tecton or Technology**

The Existing Condition refers to the existing built fabric on the site that is intended for refurbishment and reuse. This condition requires a design response that is sensitive to a low density corner shop typology. Furthermore, this condition responds to the changing grains and scales of development within Westbury and the manner in which they are responded to within the site in the form of a spatial design.

The Topography or Site explores the grading of the site and understands it as a major informant for how the tectonics of the structure respond to this slope. This informant reviews that the natural lie of

the land is important to the architectural response as it contributes to making the scheme a truly contextual response where the site is minimally altered to suit the architecture. The slope grades downwards toward the existing sports fields and up toward the street.

Flexibility or Program informs the way in which the architecture facilitates the program and the program requirements. It also refers to program placement within the site.

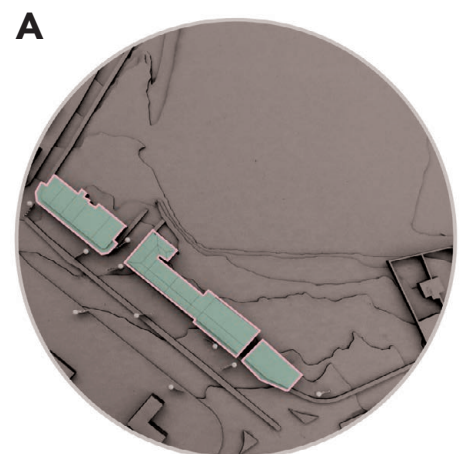
Tecton or Technology refers to the manner in which the space-making process is a response to the technology or tectonic devices to be implemented in order to create a structurally sound and structurally logical building. This further informs the material choices and changes the design response in order to create one that is both spatially and technologically responsible.

These informants are therefore reviewed in an iterative design process that develops from a primary mass exploration into the actual making of the architecture.

This design development process has been explored in a linear manner however it becomes important to note that all aspects to the design happen almost concurrently.



FIGURE 5.6
Translating thoughts
and research into space.
(Author, 2018)

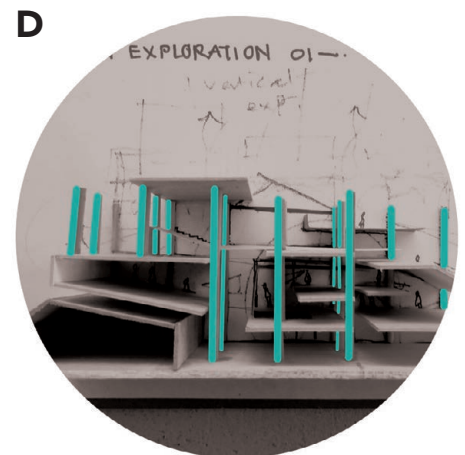
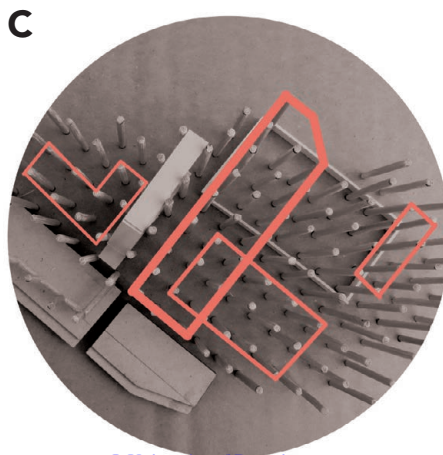
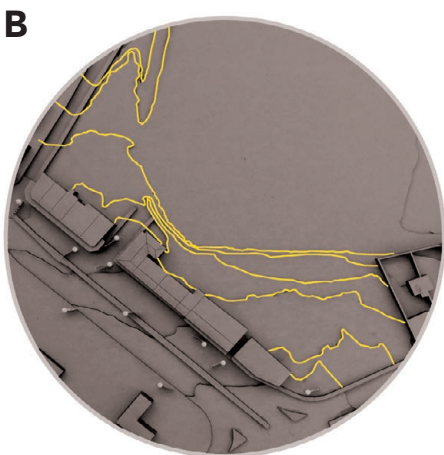
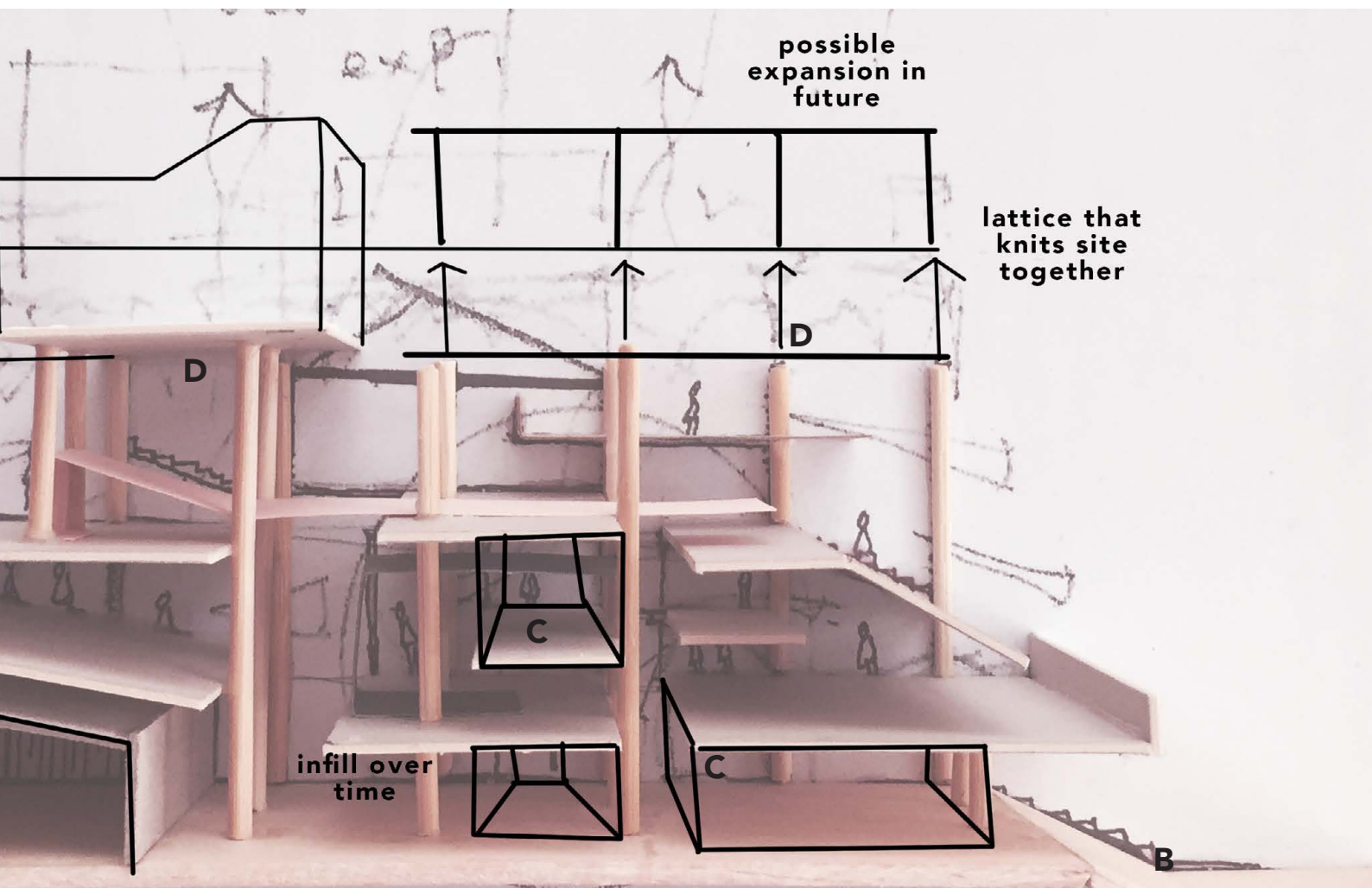


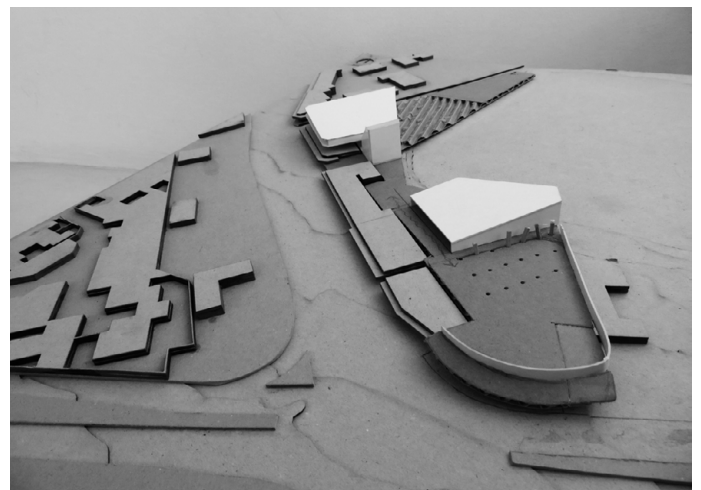
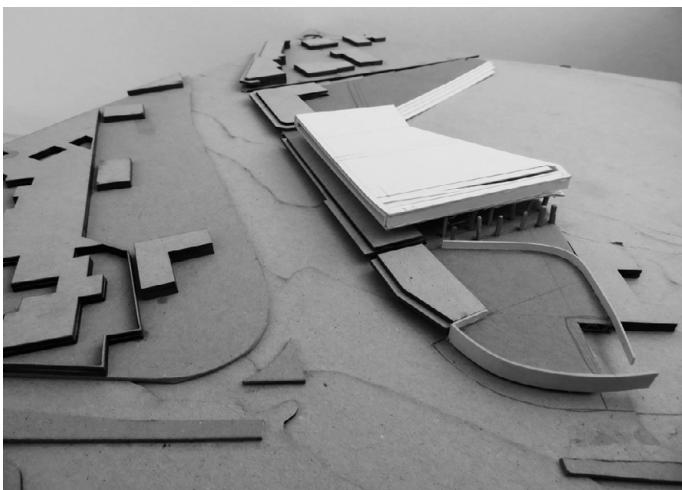
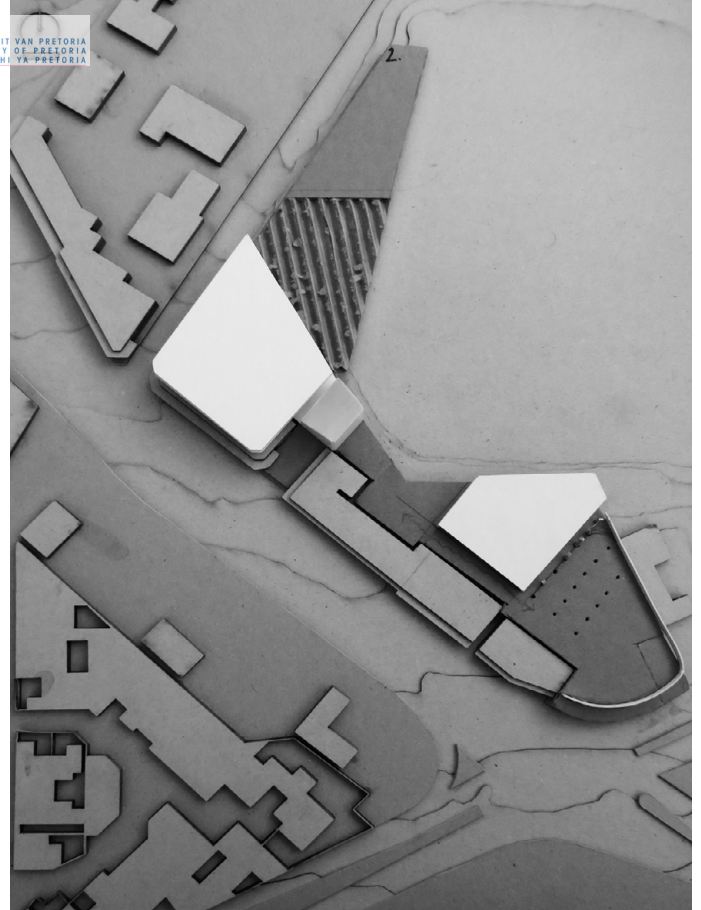
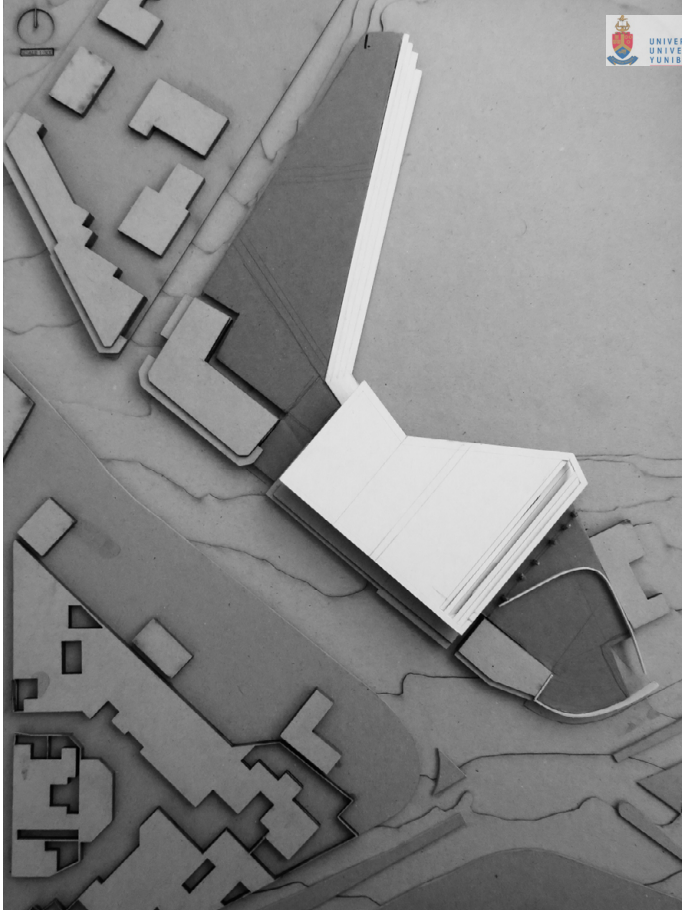
A EXISTING CONDITION

B TOPOGRAPHY/SITE

C FLEXIBILITY/PROGRAM

D TECHTON/TECHNOLOGY

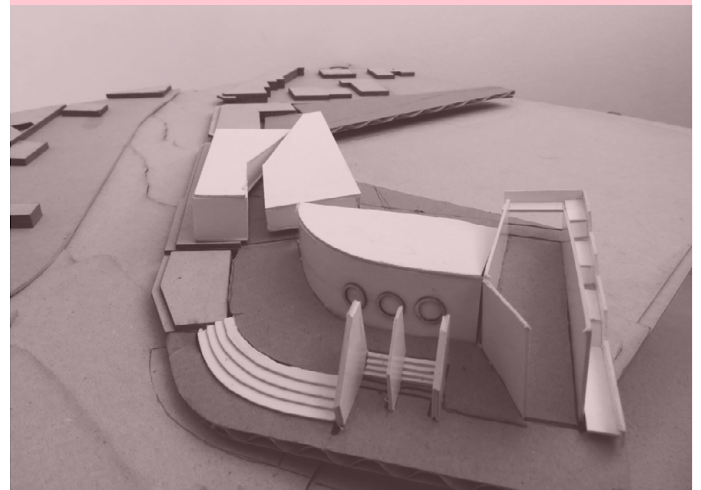
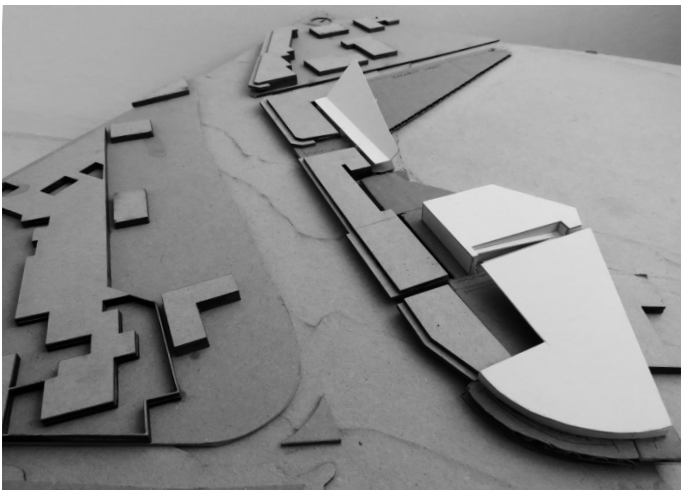
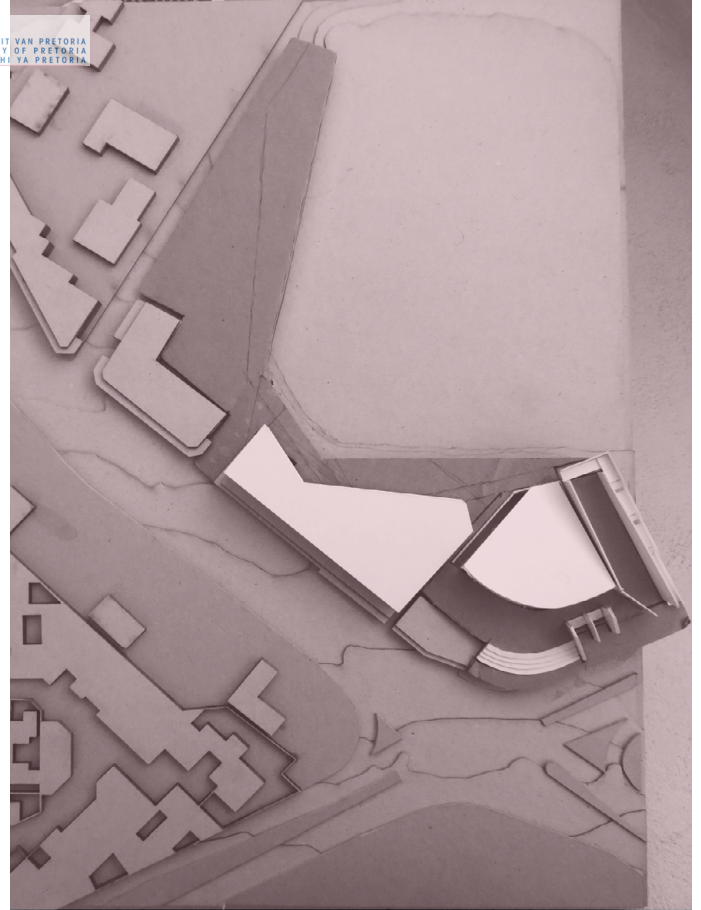
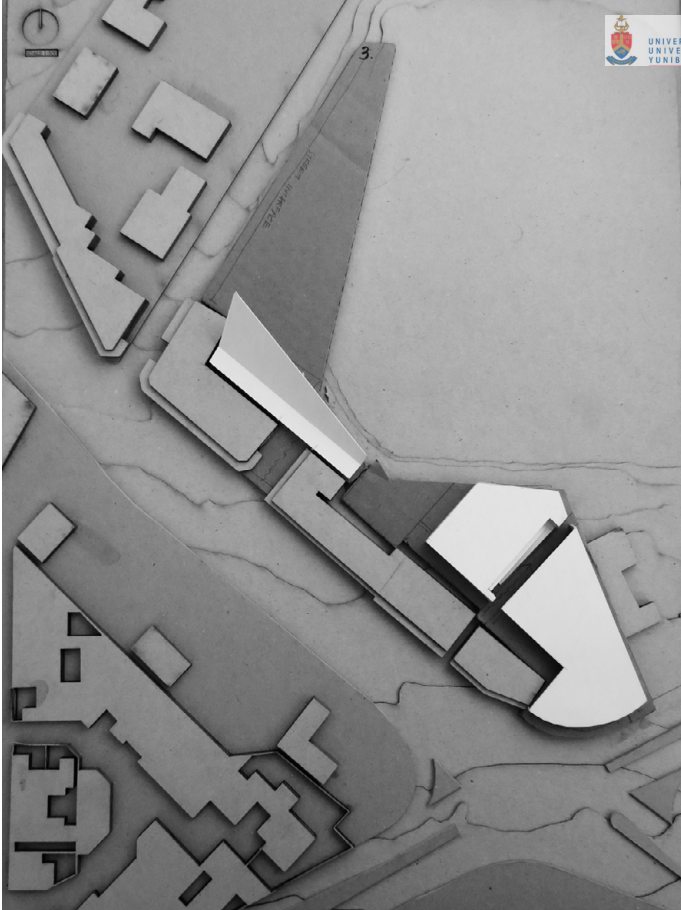




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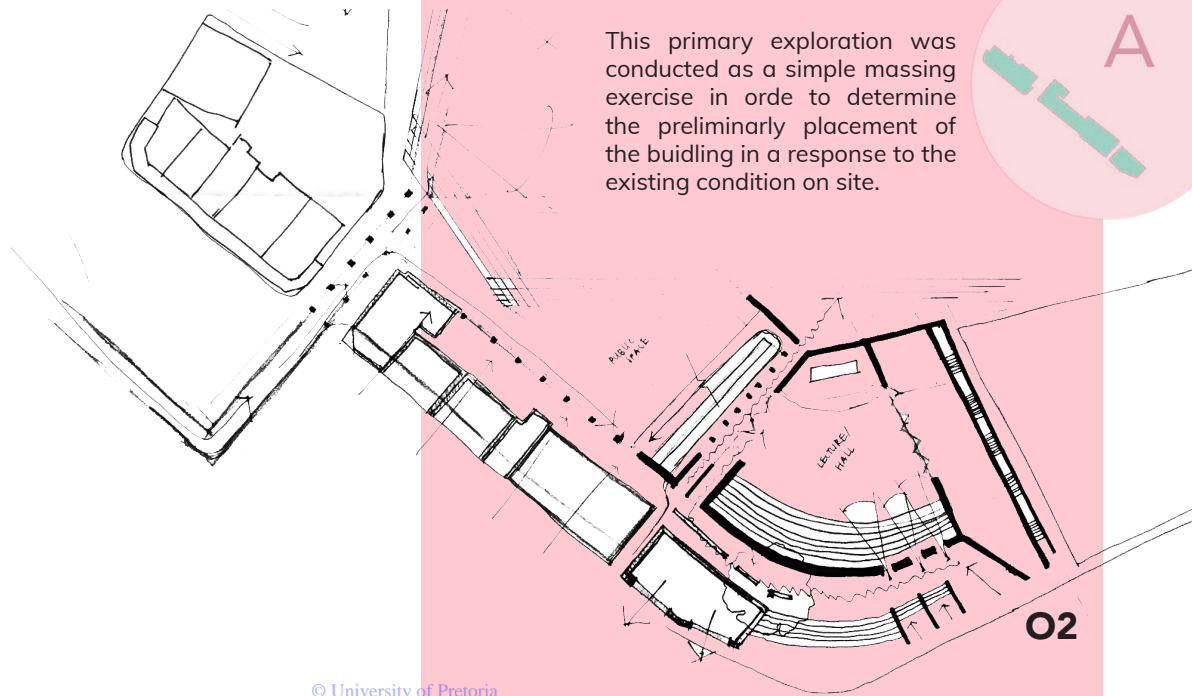
O1.2

FIGURE 5.7
Mass model exploration
— first iteration.
(Author, 2018)



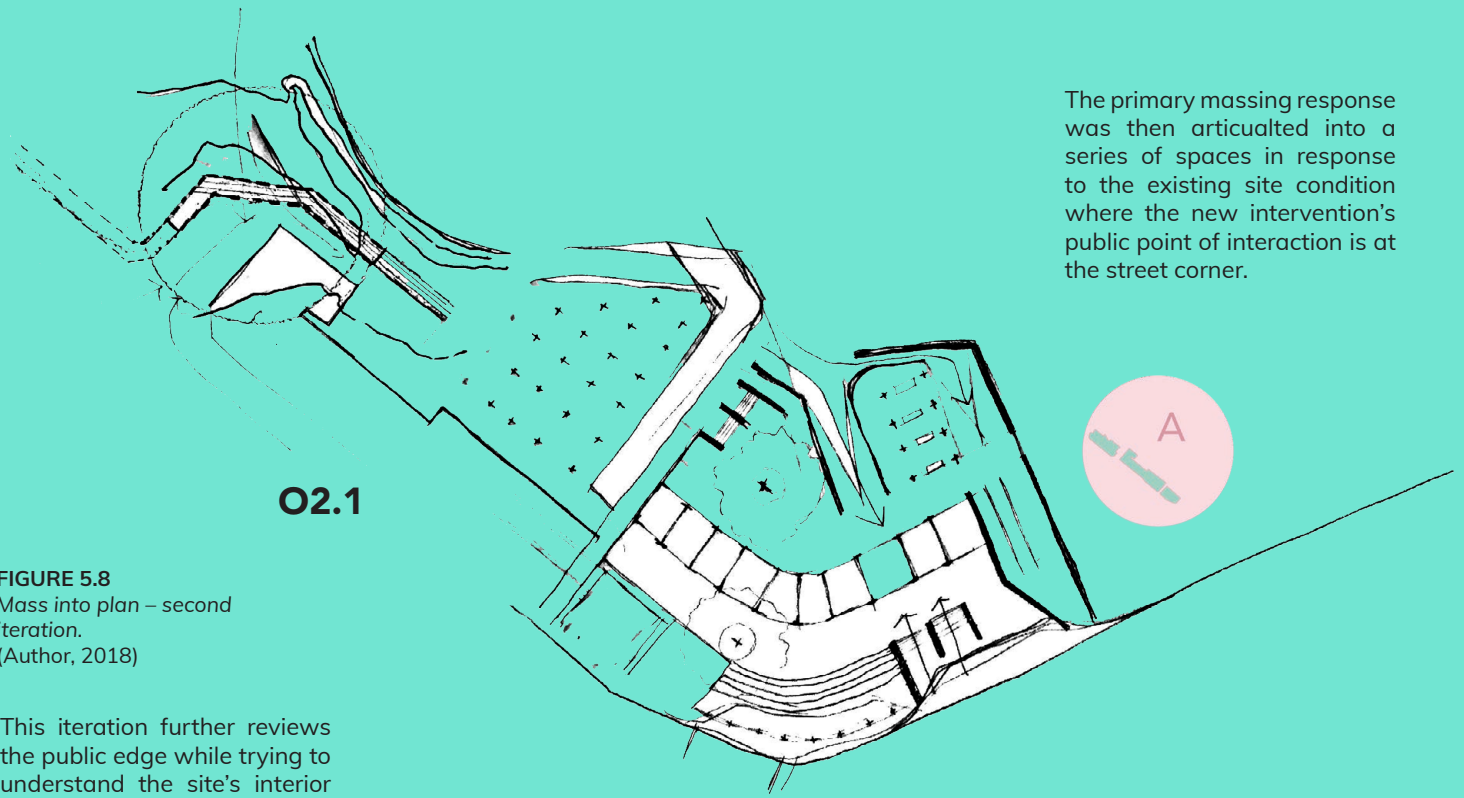
O1.3

O2



This primary exploration was conducted as a simple massing exercise in order to determine the preliminary placement of the building in a response to the existing condition on site.

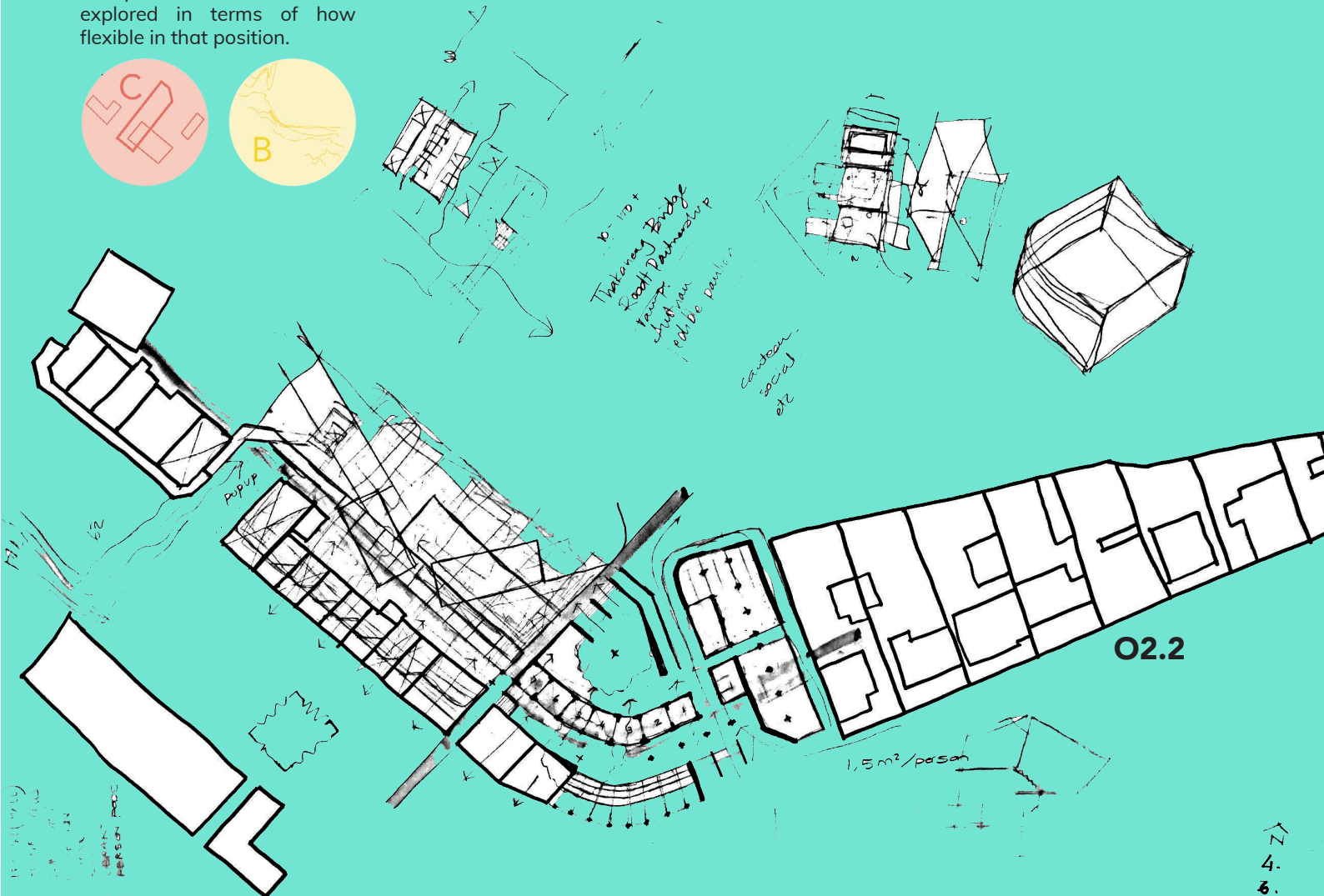
O2



The primary massing response was then articulated into a series of spaces in response to the existing site condition where the new intervention's public point of interaction is at the street corner.

FIGURE 5.8
Mass into plan – second iteration.
(Author, 2018)

This iteration further reviews the public edge while trying to understand the site's interior in terms of programmatic placement in relation to the slope and the site extents. This placement is then further explored in terms of how flexible in that position.



O4

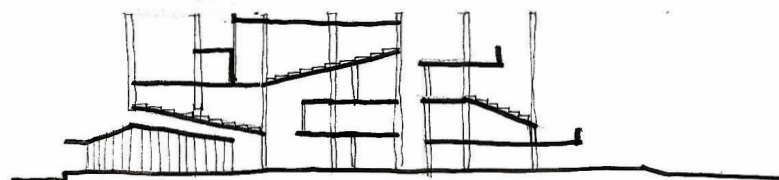
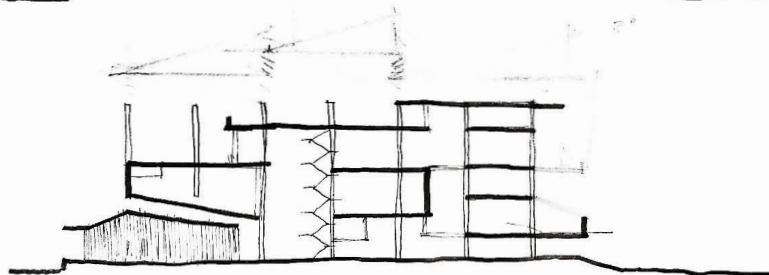
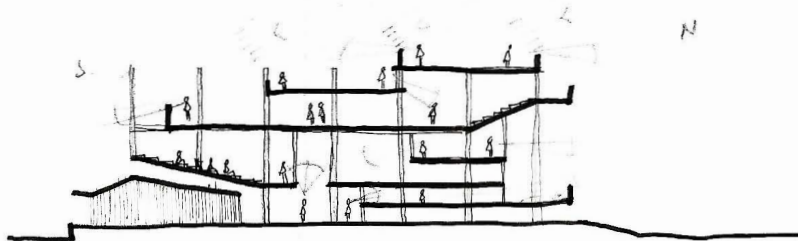
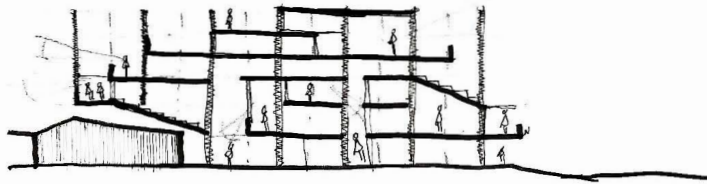
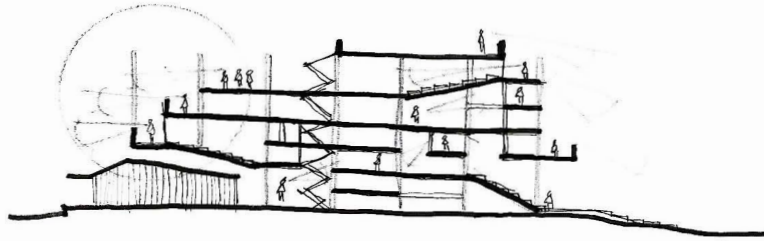
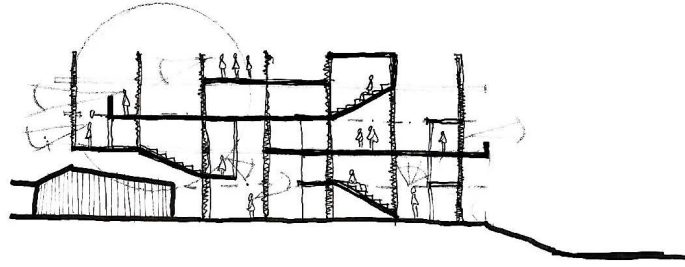
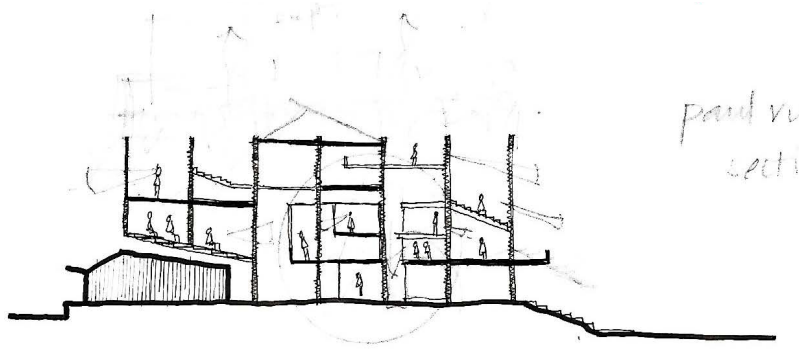
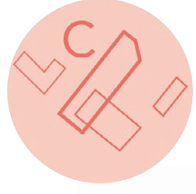
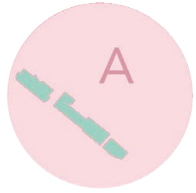
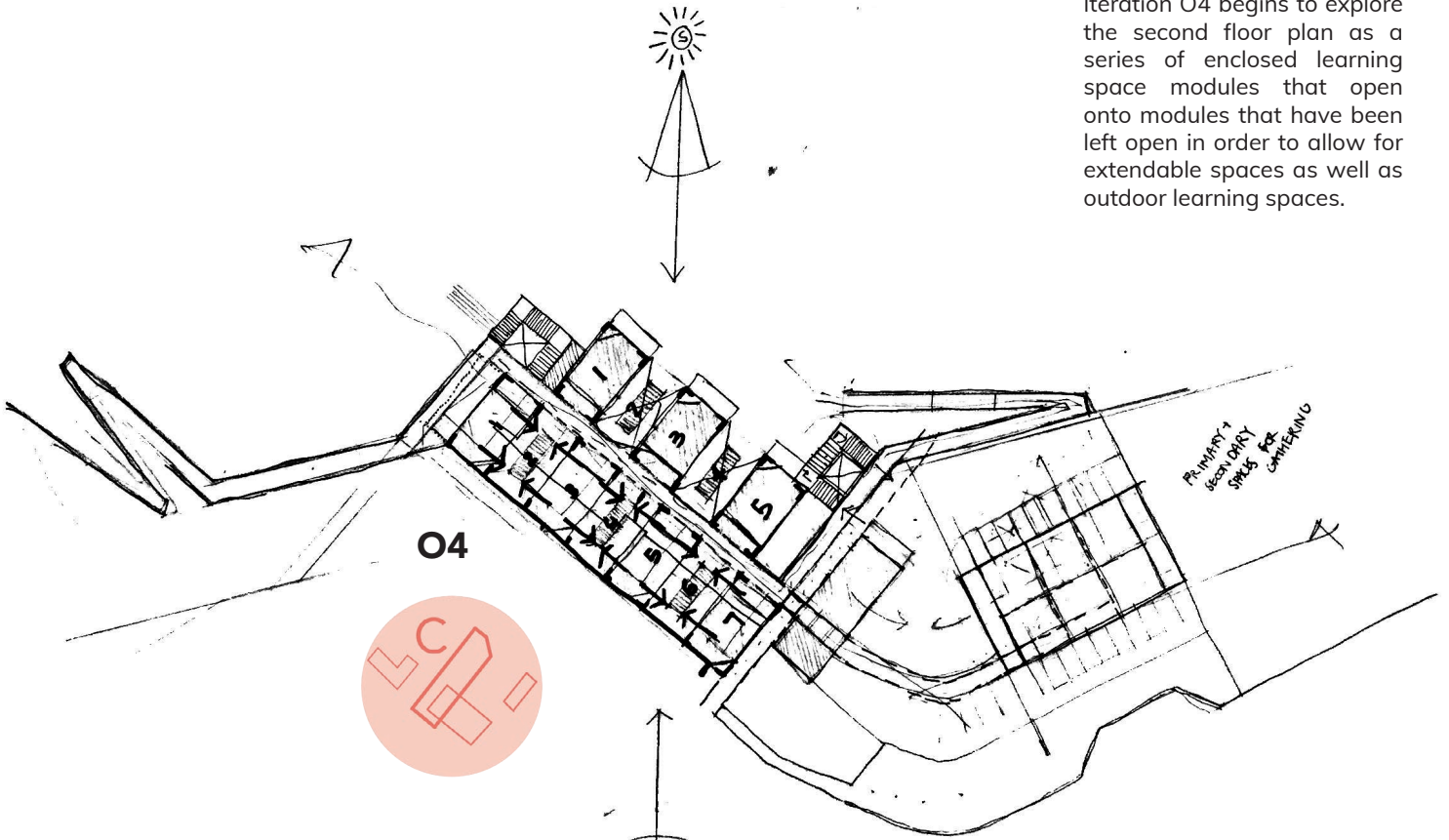


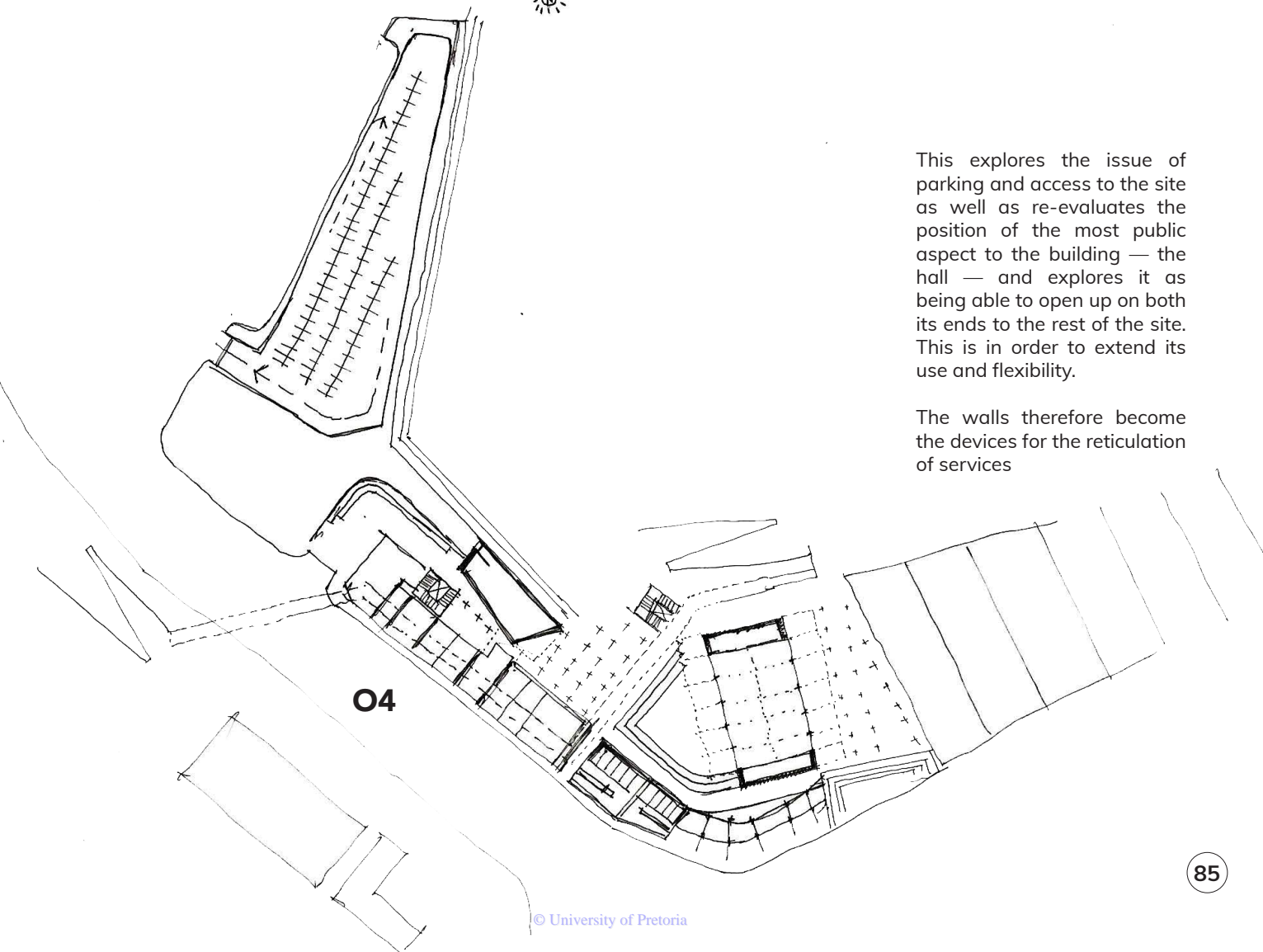
FIGURE 5.11
Section exploration.
(Author, 2018)

Iteration O4 begins to explore the second floor plan as a series of enclosed learning space modules that open onto modules that have been left open in order to allow for extendable spaces as well as outdoor learning spaces.



This explores the issue of parking and access to the site as well as re-evaluates the position of the most public aspect to the building — the hall — and explores it as being able to open up on both its ends to the rest of the site. This is in order to extend its use and flexibility.

The walls therefore become the devices for the reticulation of services



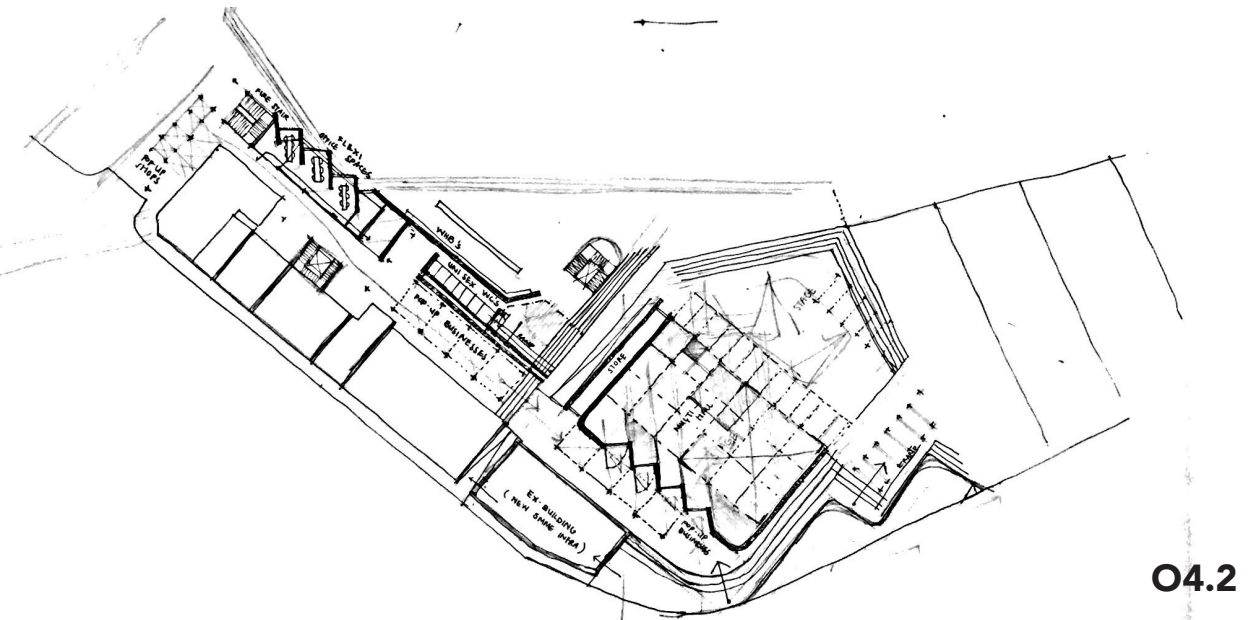
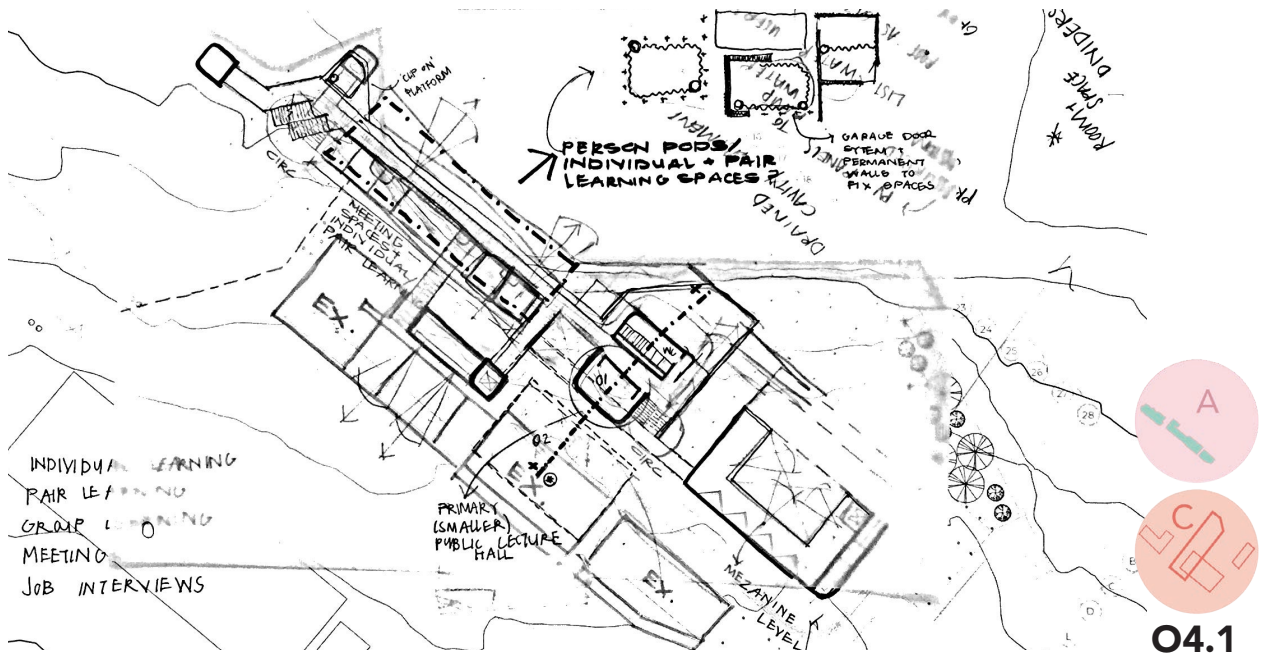


FIGURE 5.12

Translating section into plan.
(Author, 2018)

The position of the hall in these iterations further responds to the grid on which the existing buildings are placed and therefore creates a synthesis and sensitive design response between the existing and new. These iterations also explore the ground floor as being mostly open in order to extend the hall's publicity into a covered public space.

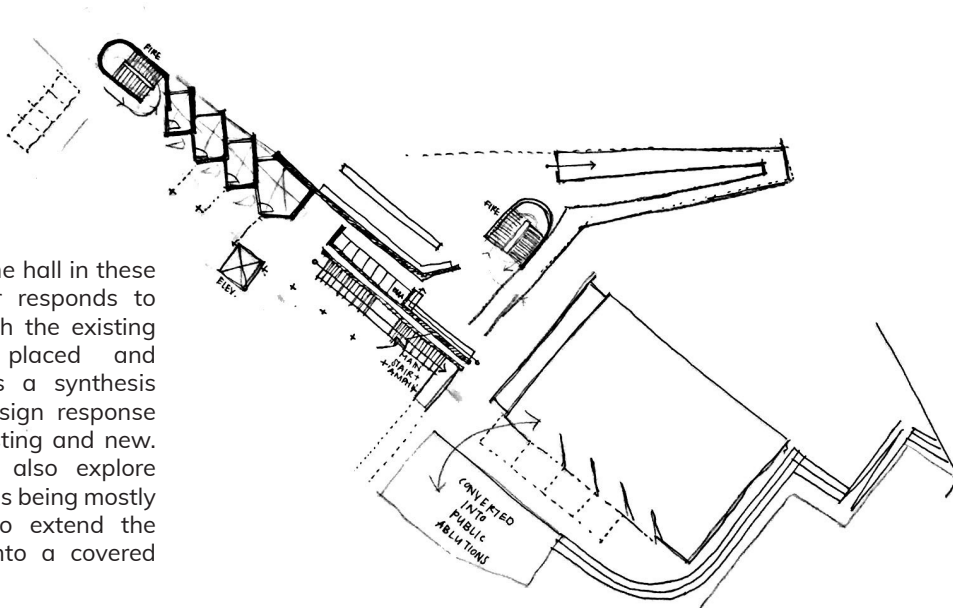
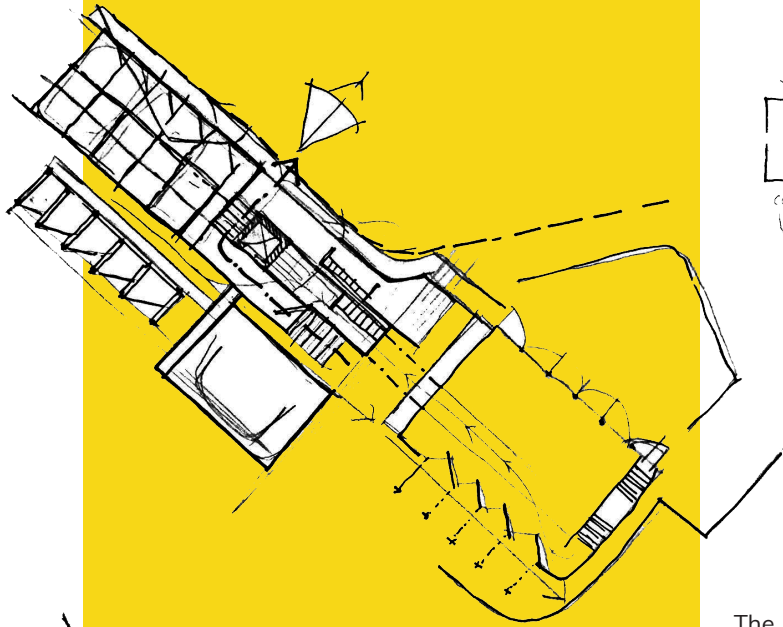
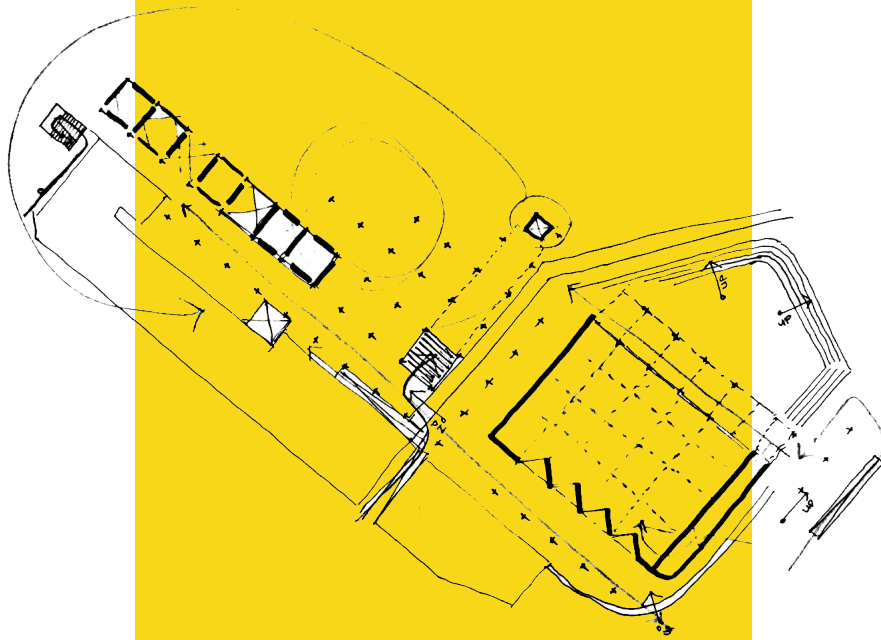


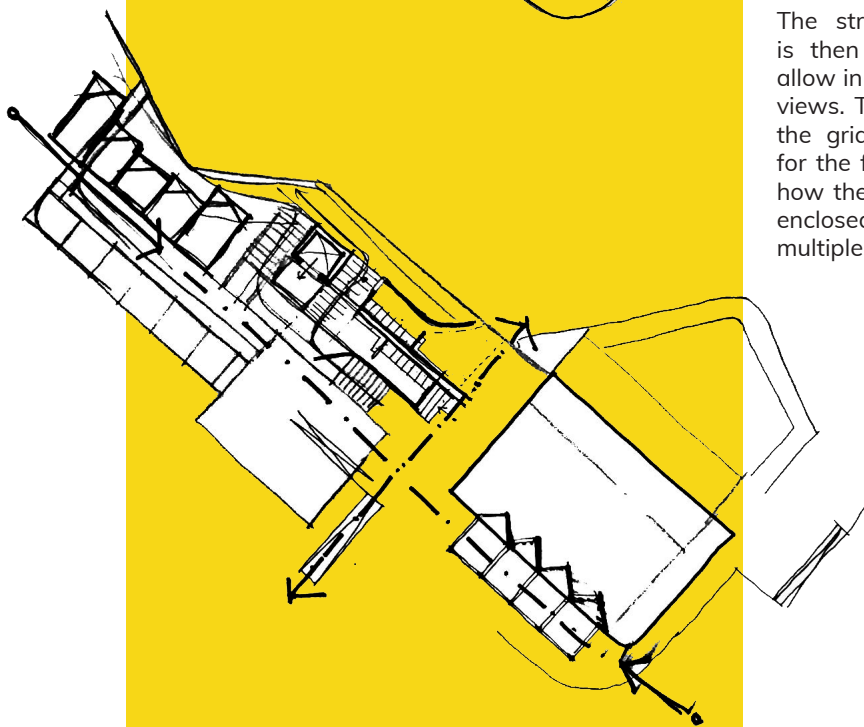
FIGURE 5.13
Iterating the plan.
(Author, 2018)



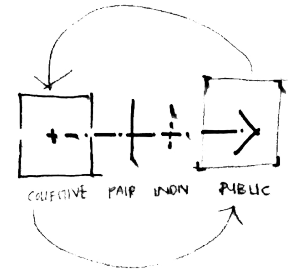
O5



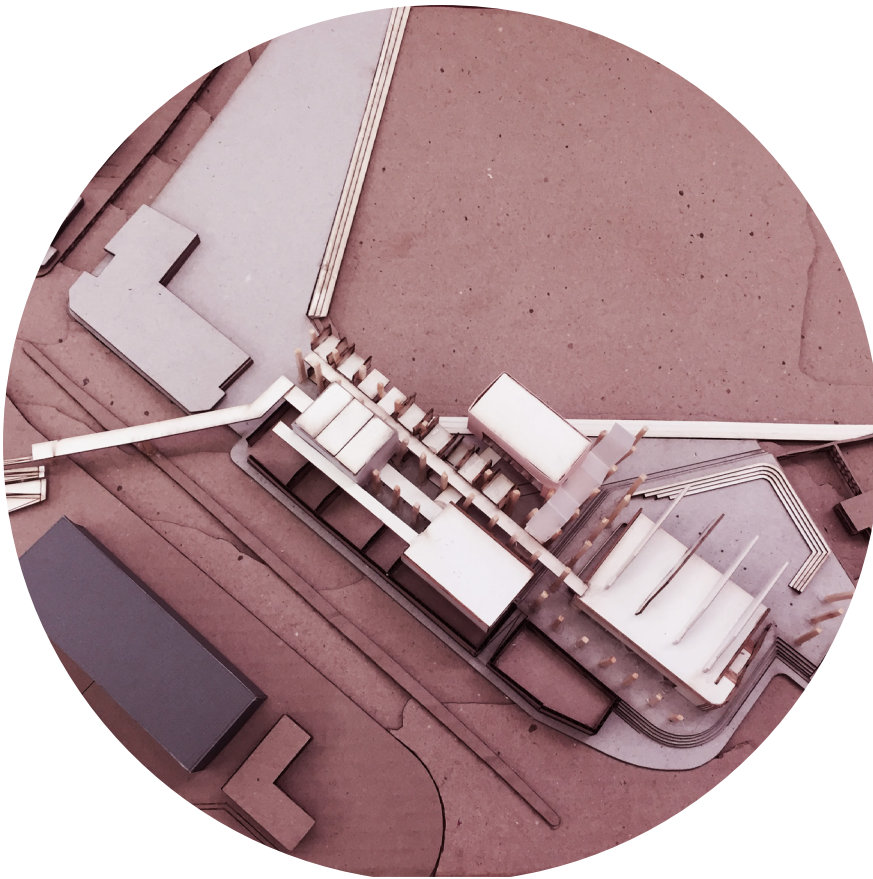
O5.1



O5.2



The street facade of the hall is then articulated in order to allow in southern light and public views. This plan further explores the grid as an ordering system for the flexible person pods and how these 6 X 6 modules, either enclosed or left open can fit into multiple formations.



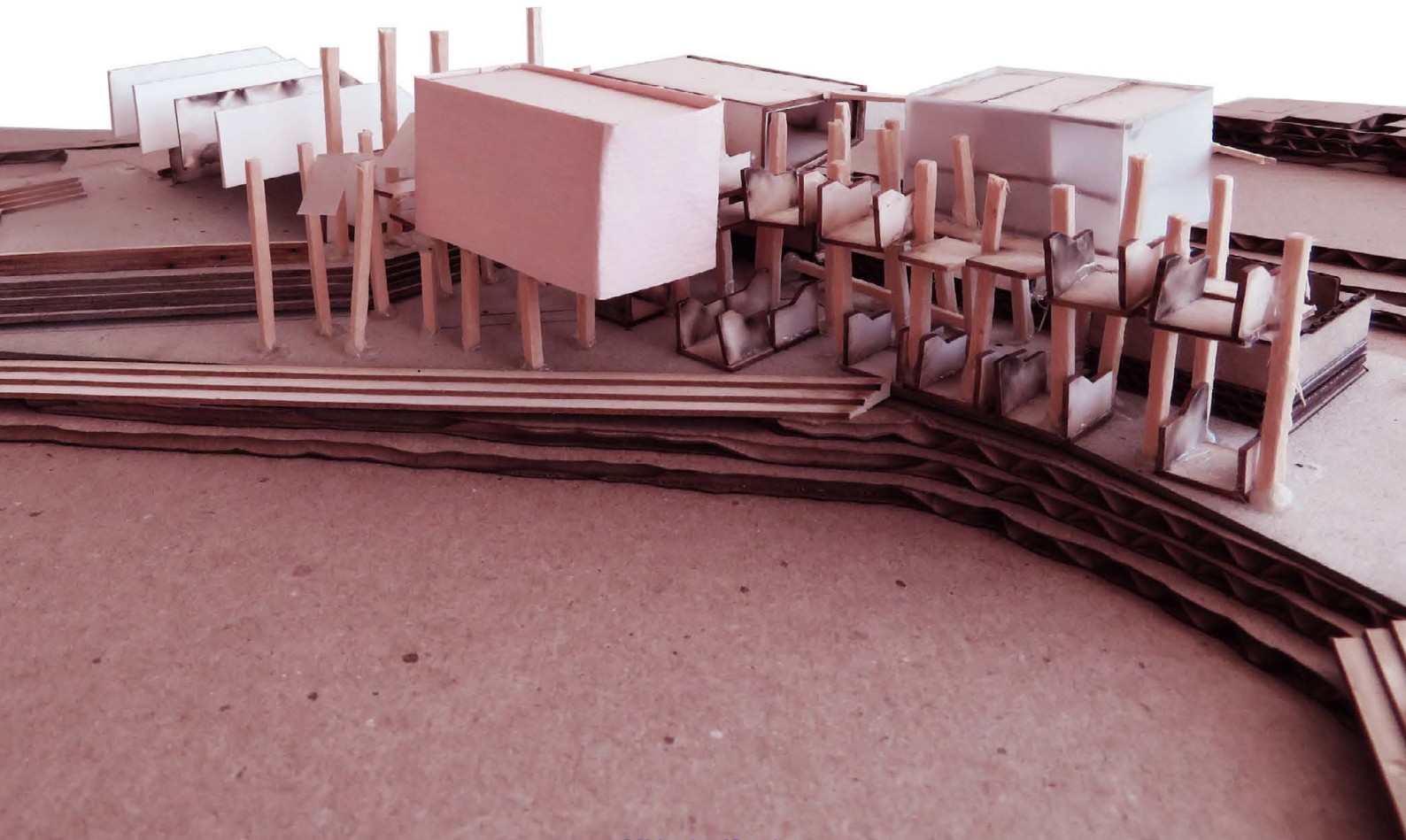
LEARNING
SPACES

FIGURE 5.14
*Midpoint design
iteration.*
(Author, 2018)

Iteration O6 as explored in the following images reviews a midpoint in the design exploration. This stage of the design explores the building components and their possible materiality. Each program and spatial component is seen as having shared relationships in order to allow for flexibility and multiplicity of use.

The main intentions of this design iteration are constant views between and across spaces, multi-use and varying scales of spaces in order to respond to the varying grains.

FIGURE 5.15
Model exploration.
(Author, 2018)



The spatial components are further read as being ordered by the grid and exist as infill to the framing that the grid provides.

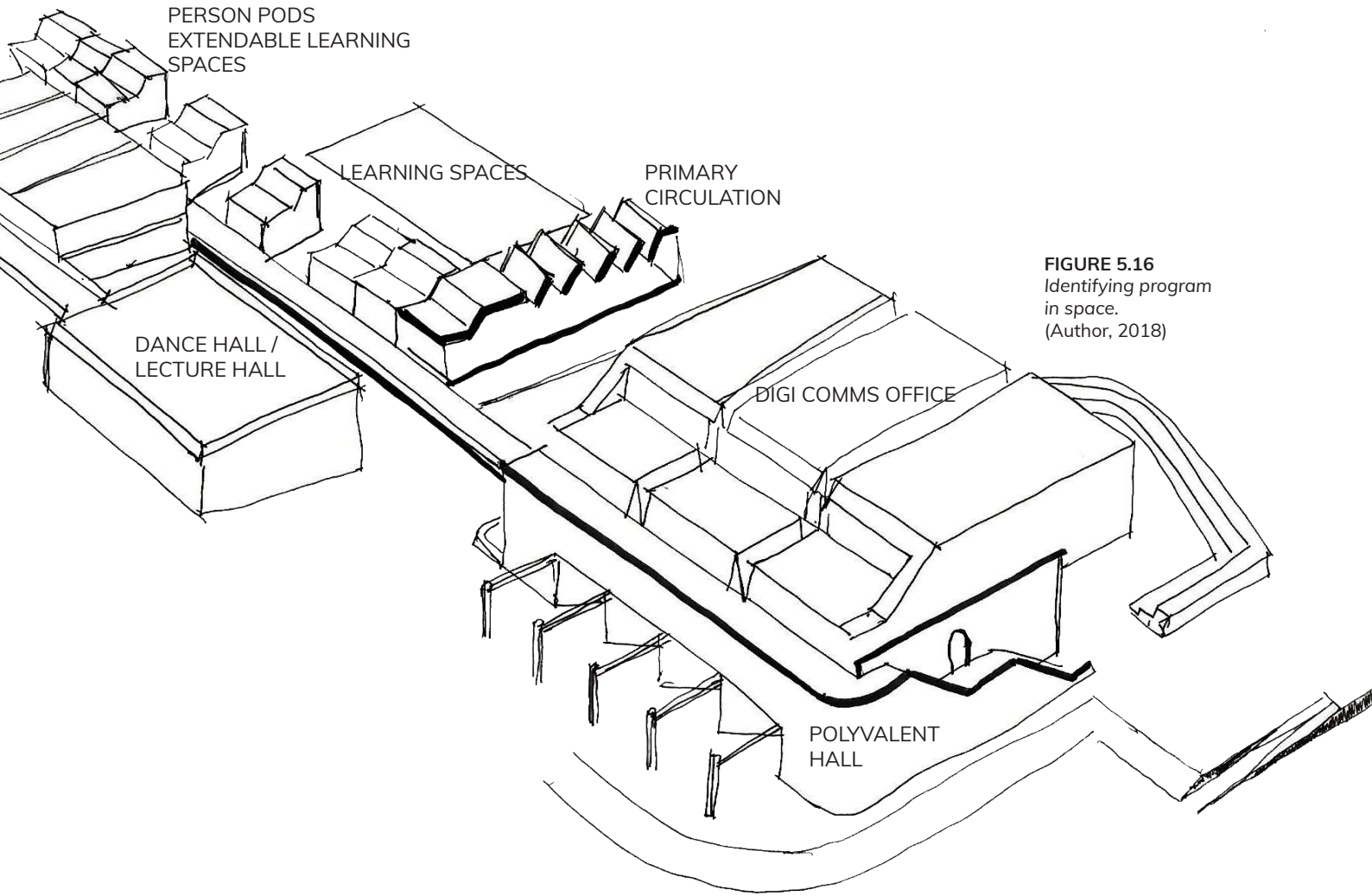
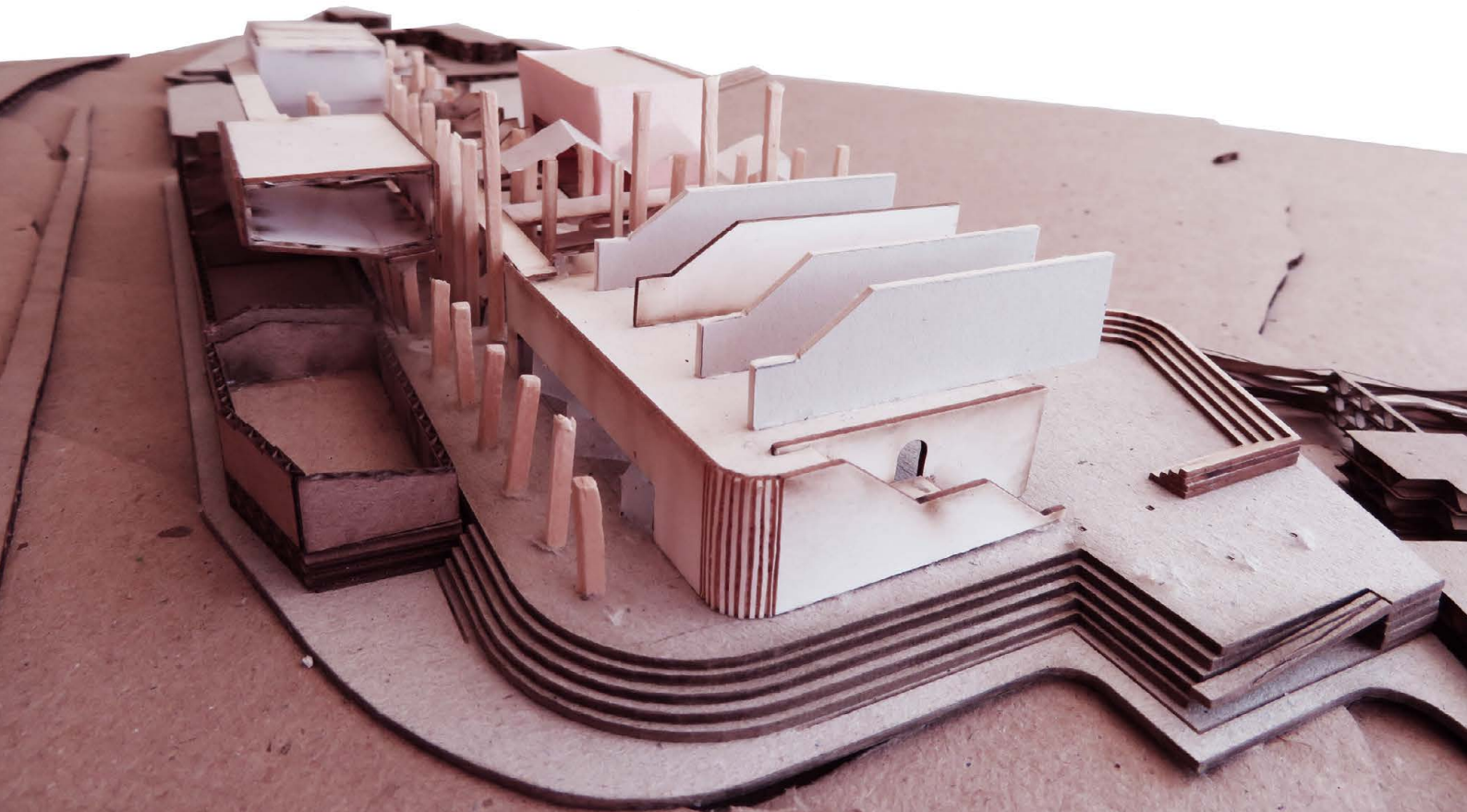


FIGURE 5.16
Identifying program
in space.
(Author, 2018)



DESIGN PRINCIPLES

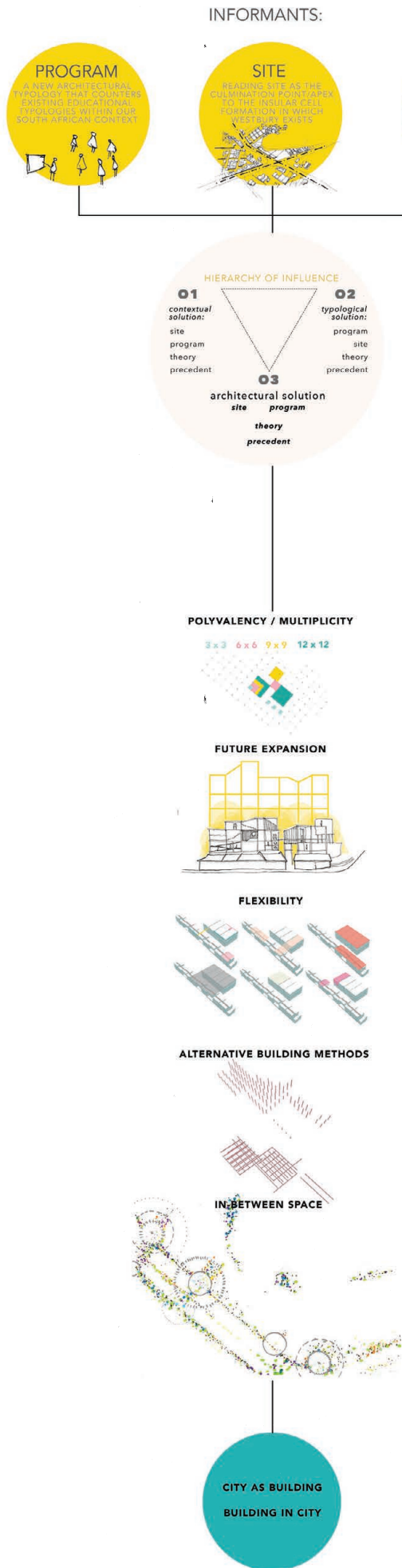
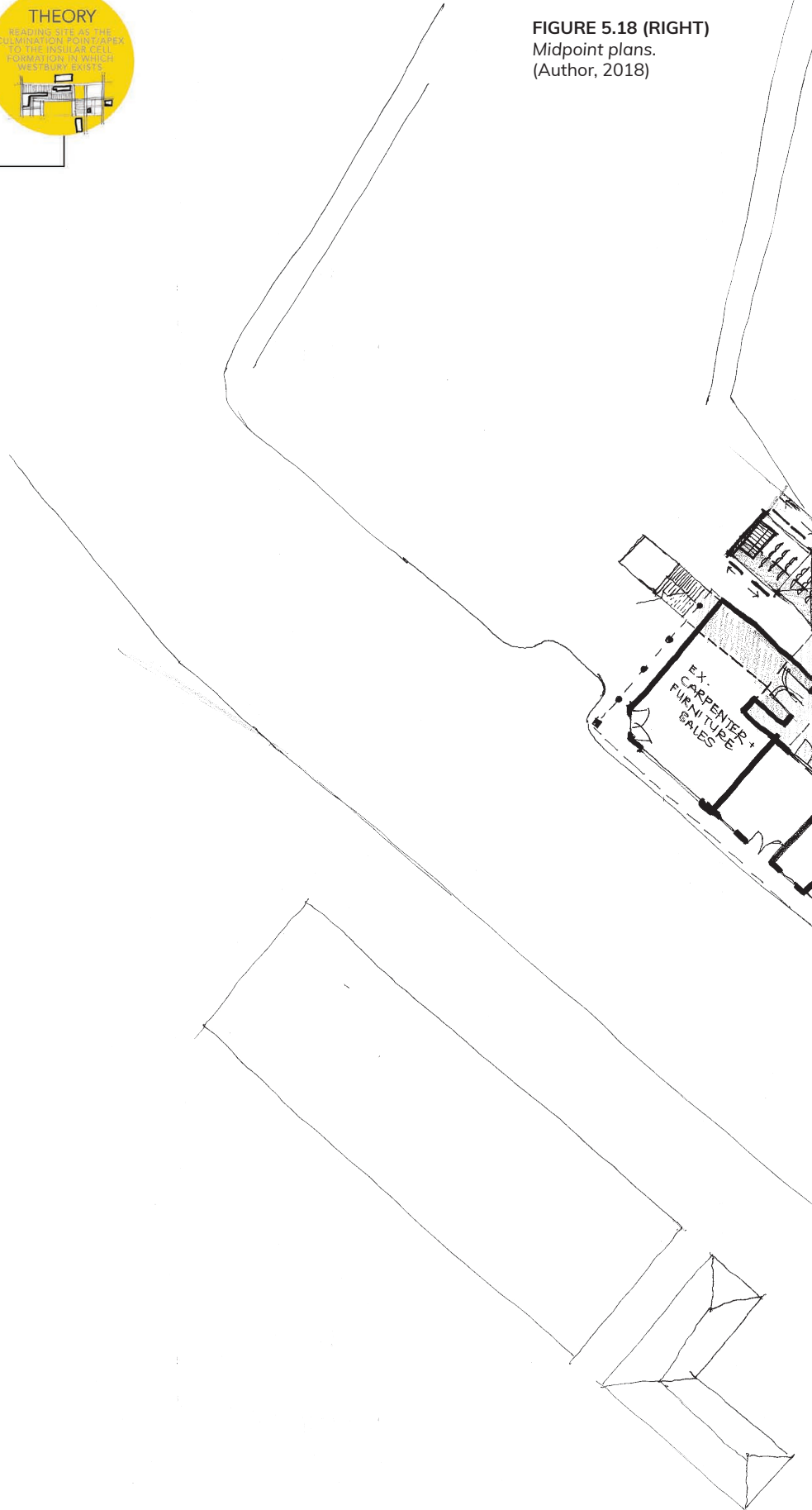
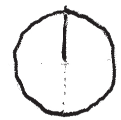
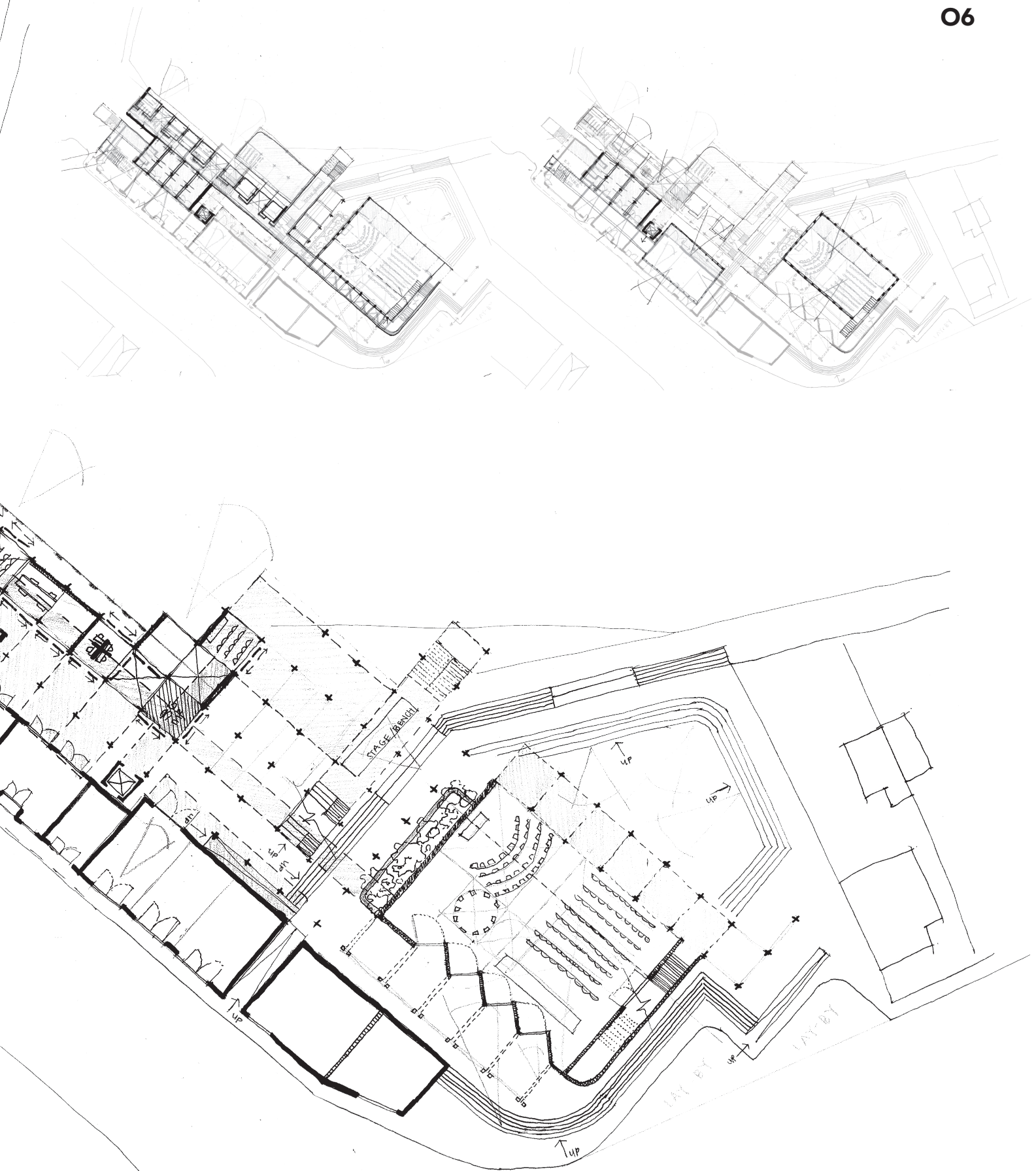


FIGURE 5.17 (LEFT)
Design principles.
(Author, 2018)

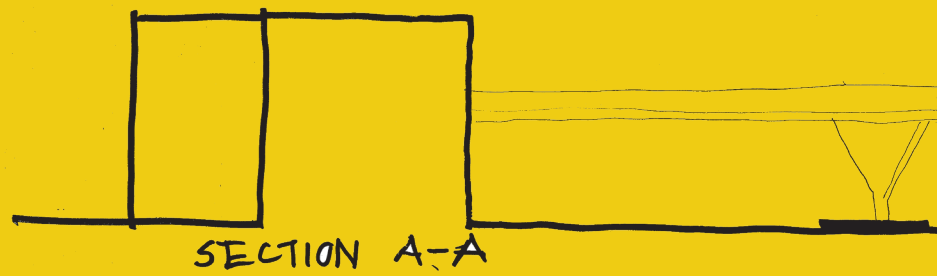
FIGURE 5.18 (RIGHT)
Midpoint plans.
(Author, 2018)





1:500
GROUND

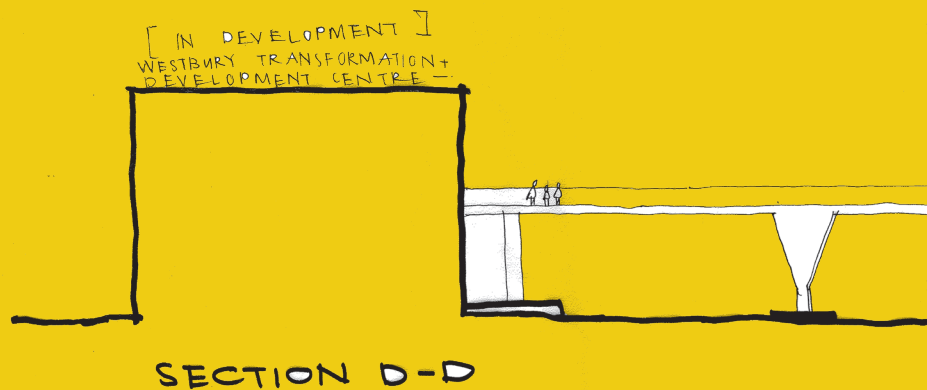
FIGURE 5.19
Midpoint sections.
(Author, 2018)



The building section explores the alternating levels and space typologies in order to achieve views and different scales of space. These scales further review program hierarchy.

What is also evident is the response to the existing condition. The lecture hall is positioned to cantilever over the existing infrastructure but responds to this by mimicking the slope of its roof.

The response to topography is also evident in the positioning of the viewing terraces in order for users to sit and watch sports games on the existing sports fields.





The following diagrams begin to explore the design iteration in its tectonic elements and the manner in which each respective component may be constructed to suit its function. The building is thus read as a layering of structure and infill.

The structure or frame allows for the infill to take many forms and further allows for flexibility as it is ordered in a modular system.

There also exists an in-between component which is typified by the circulation spaces and the secondary learning spaces that take form between the structure and the infill.

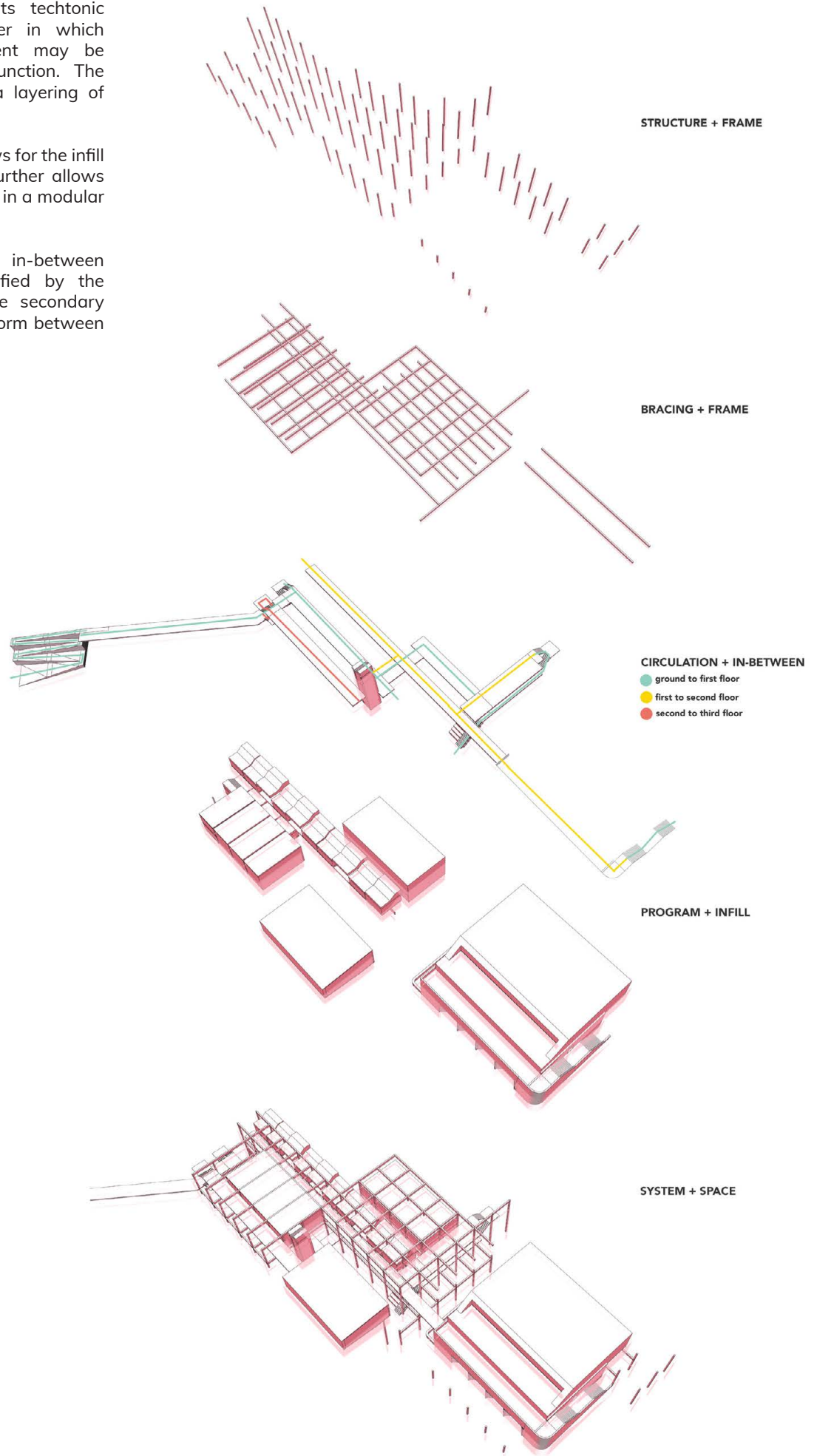


FIGURE 5.20
Components of the first
architectural response.
(Author, 2018)

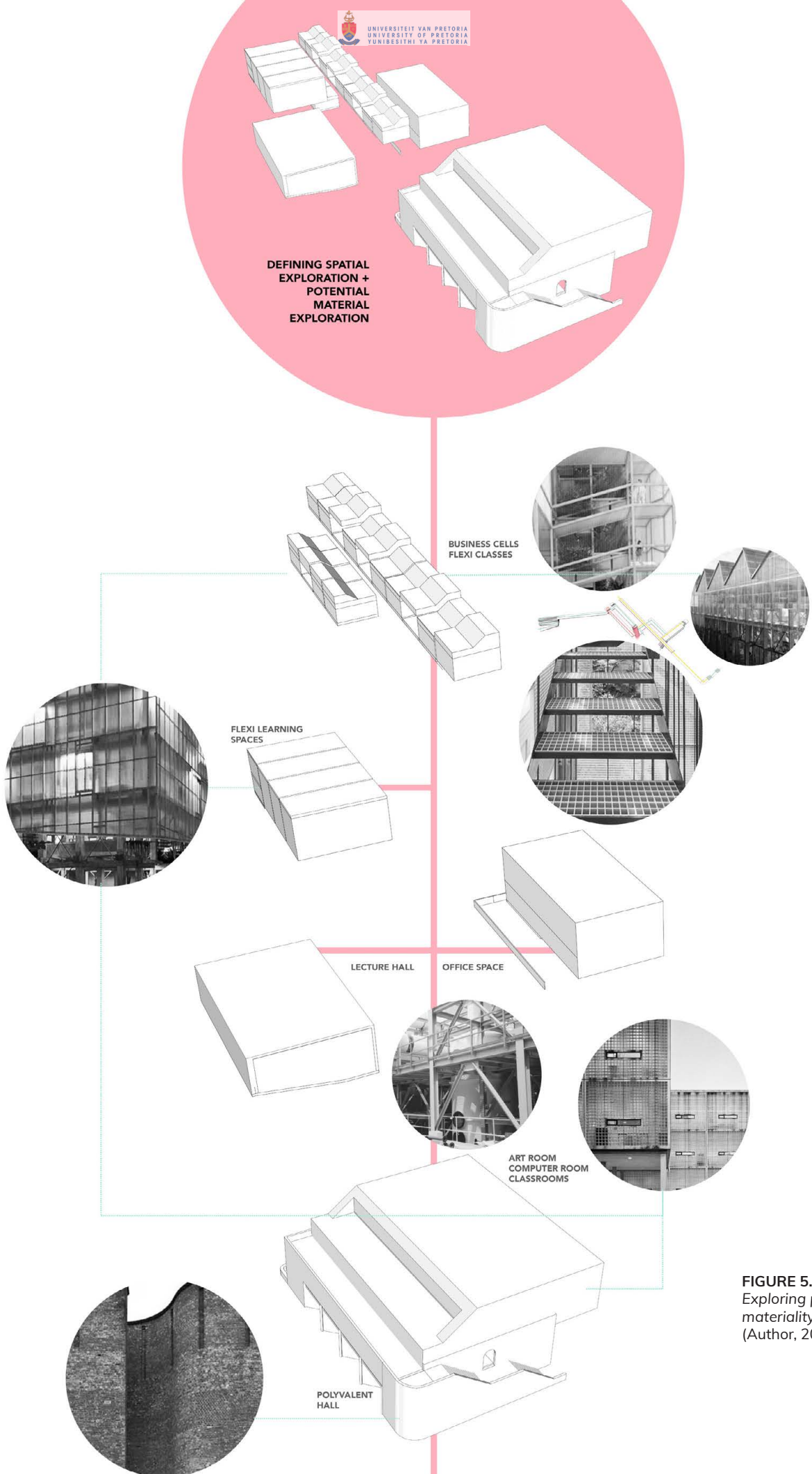


FIGURE 5.21
Exploring possible
materiality.
(Author, 2018)

- 5.1 defining and designing the 'in-between'
- 5.2 translating thoughts into space
- 5.3 constructing space
- 5.4 program in space

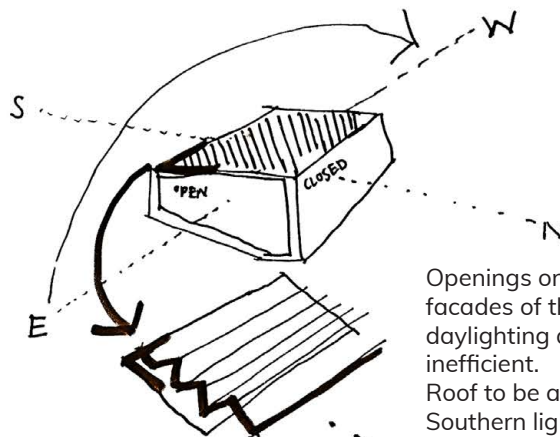
5.3 constructing space

The alongside diagram reviews the midpoint design stage as a basis for critique and begins to express the further needs of the architecture.

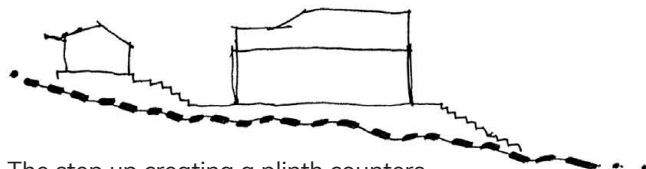
This evaluation thus leads to an architectural exploration that becomes more final in its iterations as it begins to introduce the physical making of the designed spaces and the manner in which these spaces may be constructed.

The architectural response enters the stage where it is thought about as a tectonic element that has a particular structural language. Furthermore, that language is expressed through the articulation of materiality.

Cantilevered classroom block requires a large amount of structure which begins to interfere with creating free and flexible space and therefore limits the autonomy of the learning spaces. Classes as multi-story block references existing typologies and limits learning to the 'classroom' space.



Openings on the Eastern and Western facades of the lecture hall render the daylighting and internal temperature inefficient. Roof to be articulated to allow in Southern light.



The step up creating a plinth counters the slope of the site and therefore creates infill issues. Stepping down with the site is a more appropriate design response to topography as well as the existing built fabric as the existing is given importance and visual preference.

The scale is to be sensitive to the pedestrian but simultaneously give impression that the hall is the public pivot of the site and scheme. Lessen height of opening in brick wall to allow for human scale.

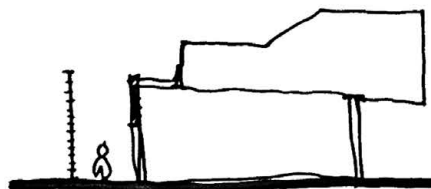
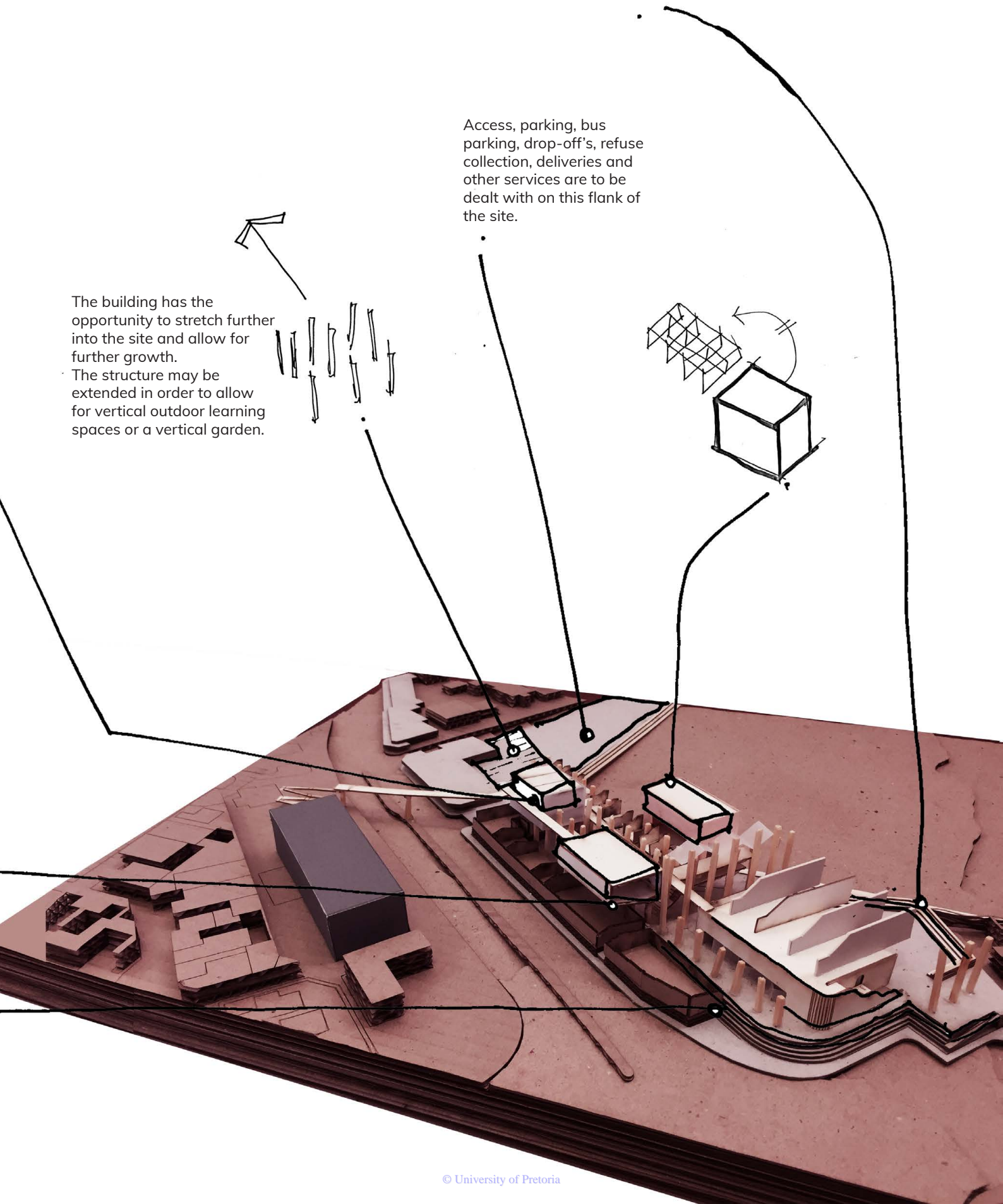


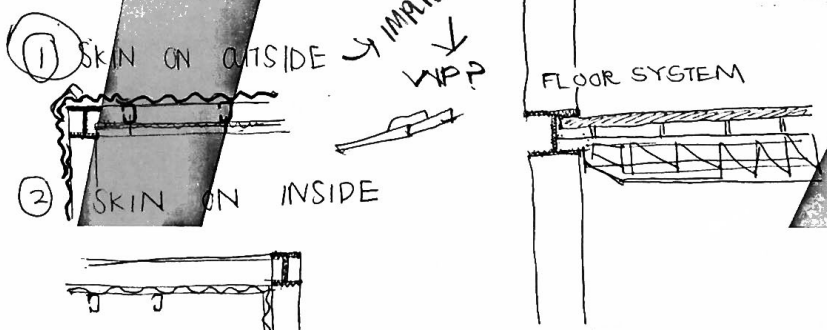
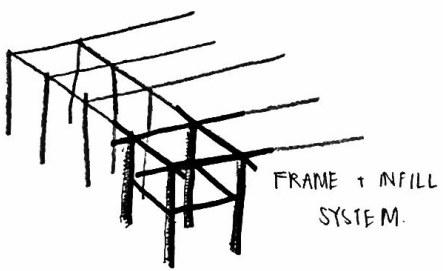
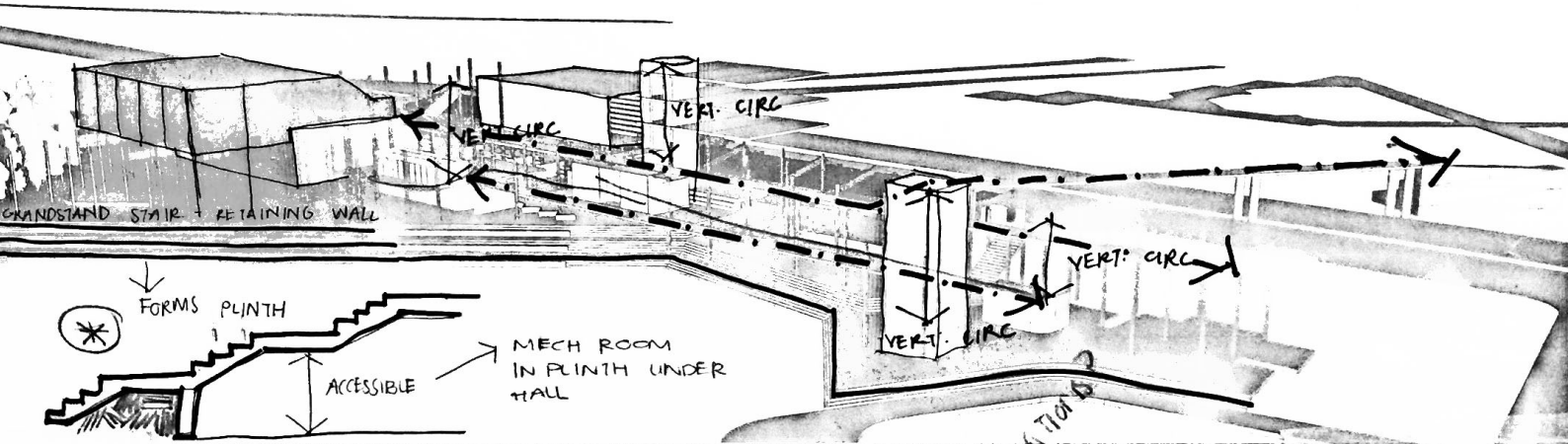
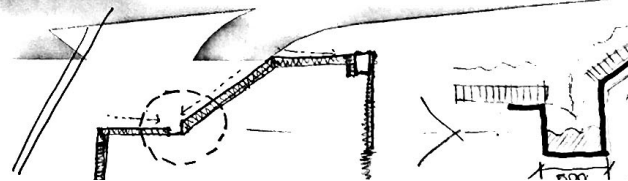
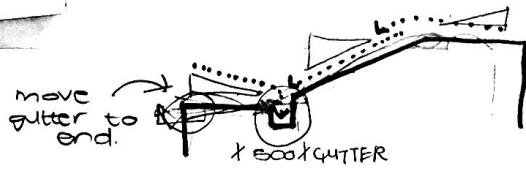
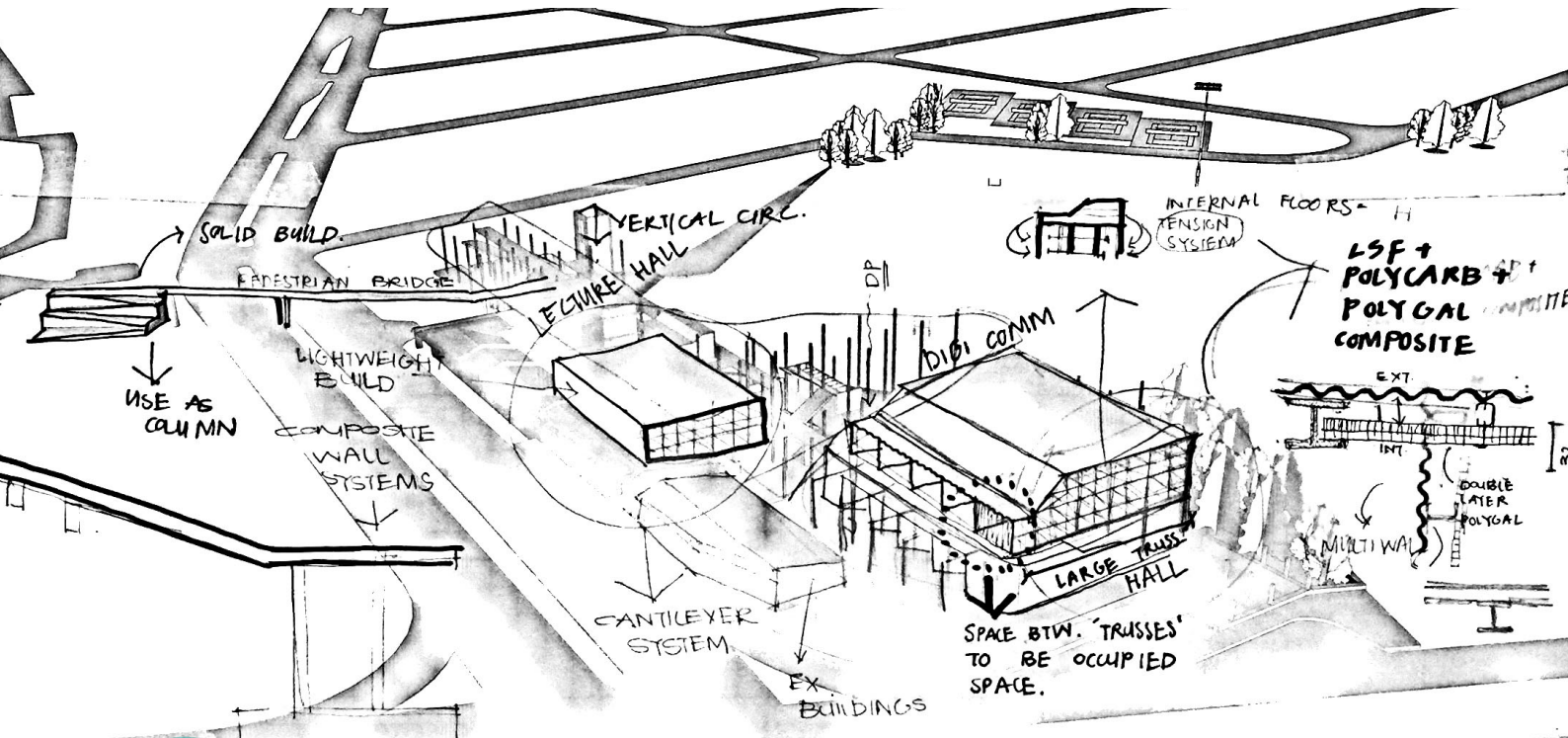
FIGURE 5.22
Evaluating the midpoint
architectural response .
(Author, 2018)

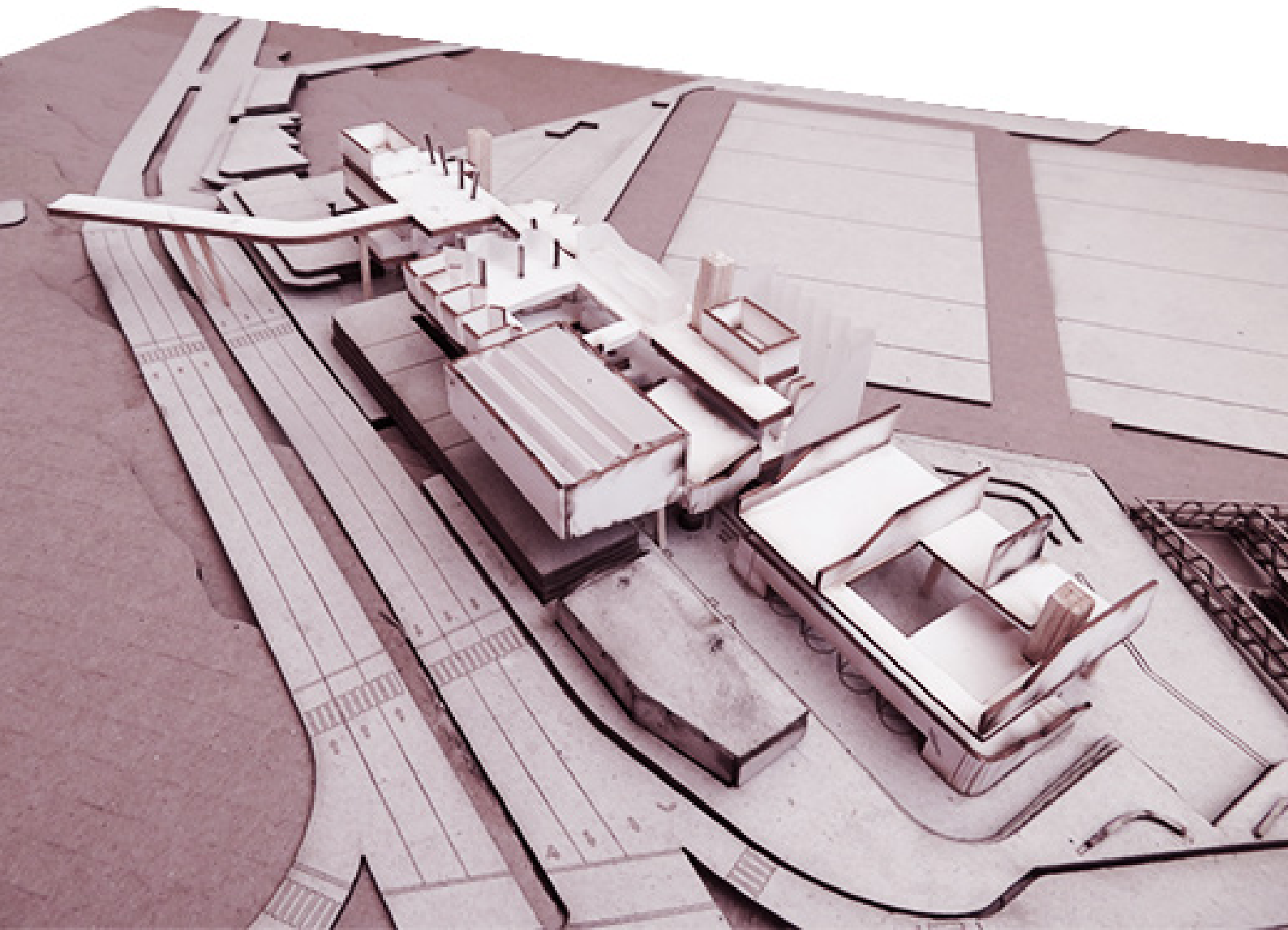
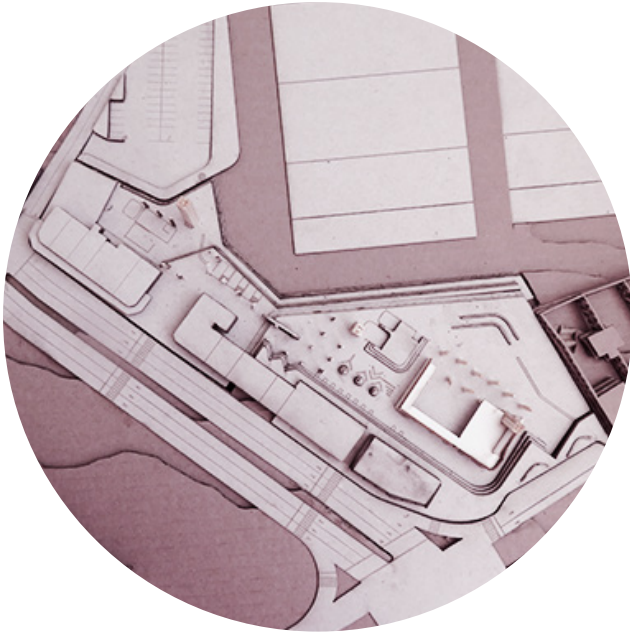
Stairs hold space but limit access. They need to continue holding space while allowing a flow of people onto the viewing terraces in order for the terraces to become spill-out space for the large-scale events held within the hall.

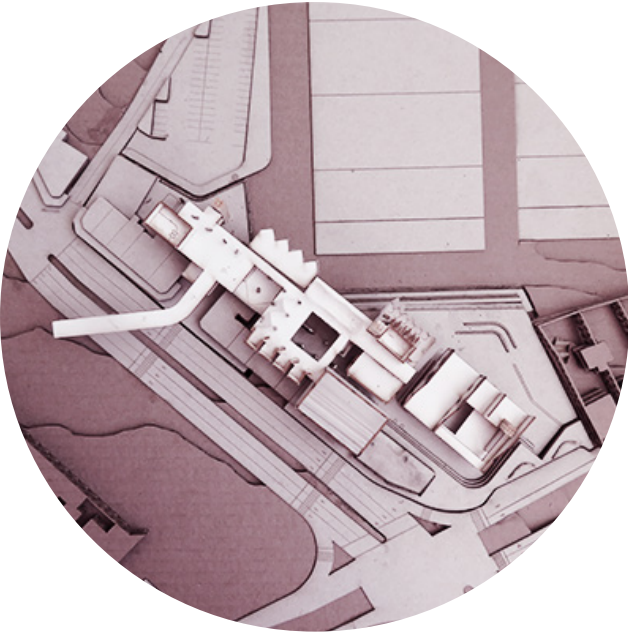
Access, parking, bus parking, drop-off's, refuse collection, deliveries and other services are to be dealt with on this flank of the site.

The building has the opportunity to stretch further into the site and allow for further growth.
The structure may be extended in order to allow for vertical outdoor learning spaces or a vertical garden.









Final design iteration model before the technification exploration. The model explores form, scale, proportions and materiality of the intervention and understands how it sits in its context.

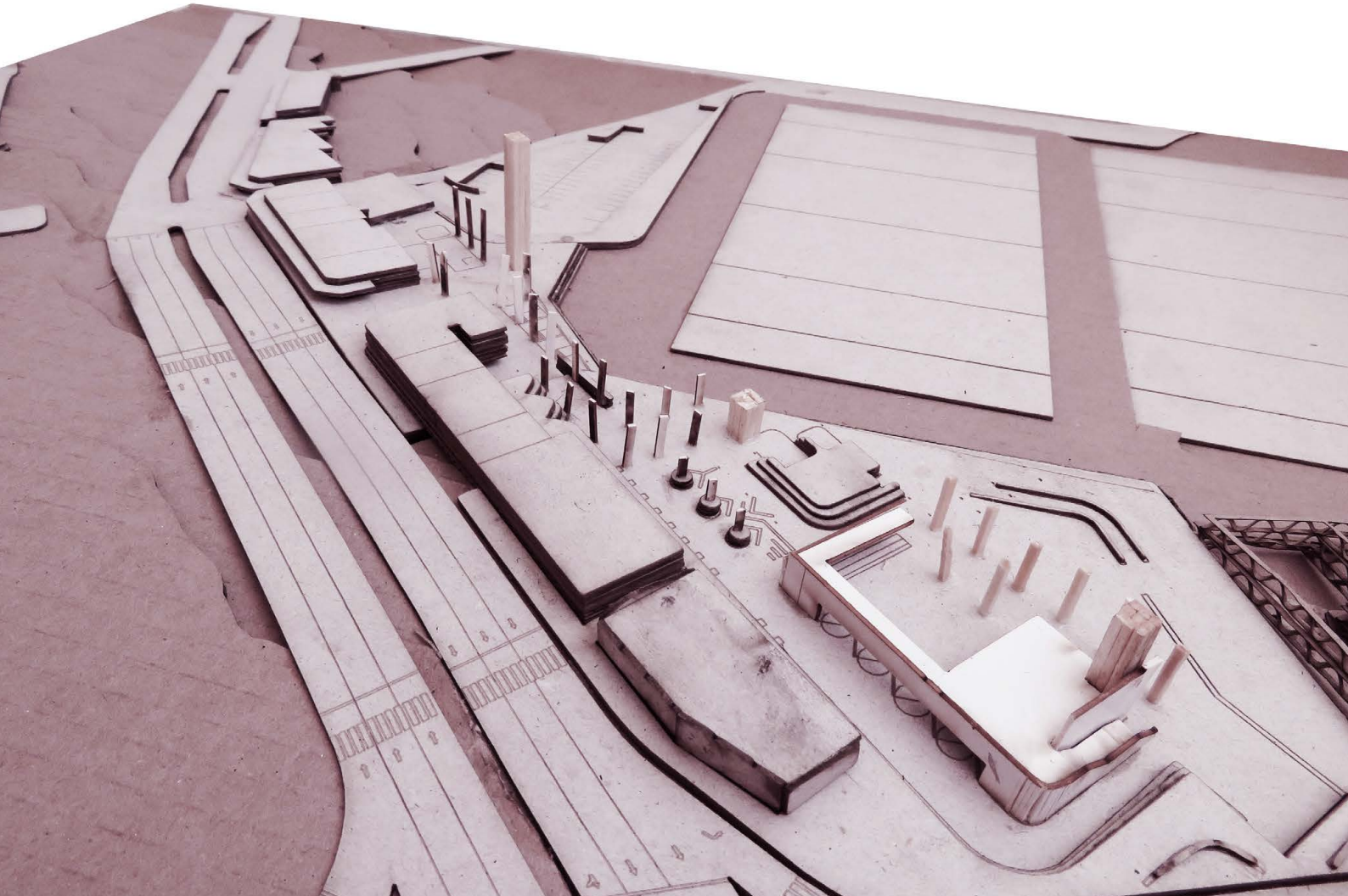


FIGURE 5.24
Exploring the long span
system of the polyvalent hall.
(Author, 2018)

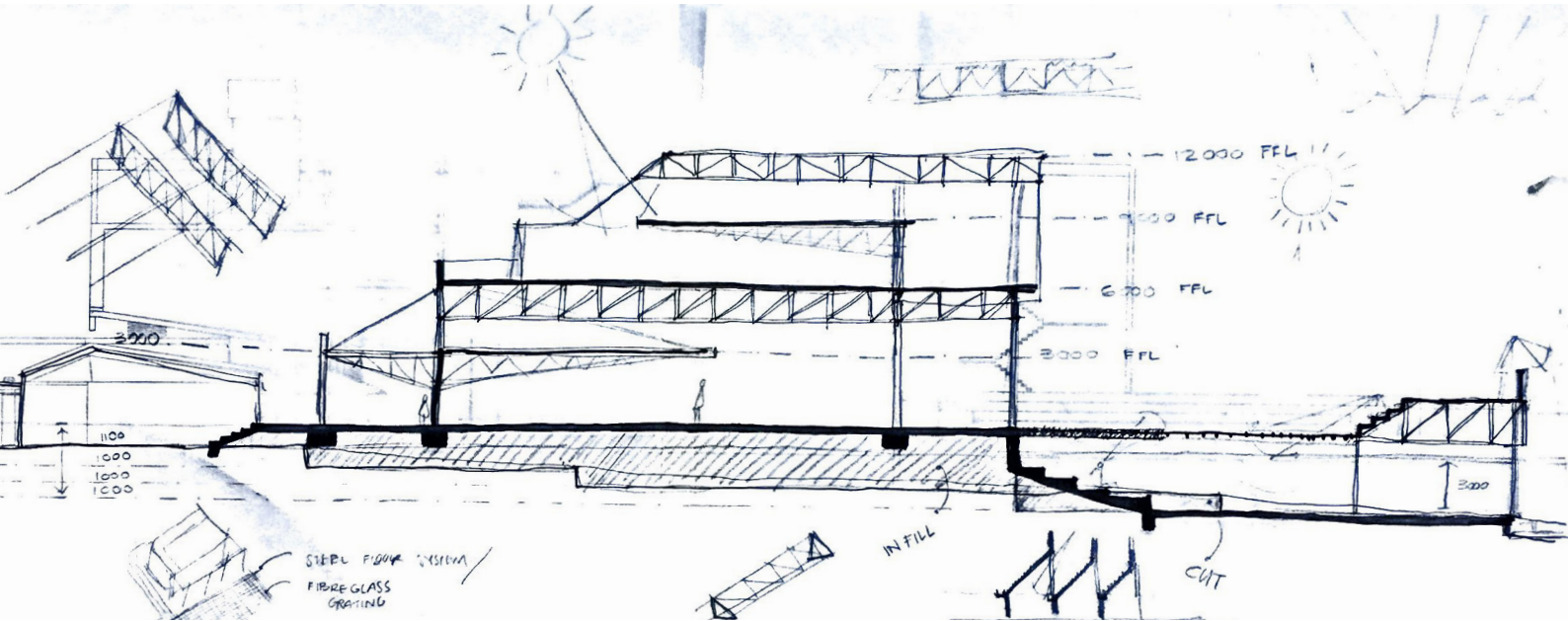


FIGURE 5.26
Exploring structure in the
cantilever lecture/dance hall.
(Author, 2018)

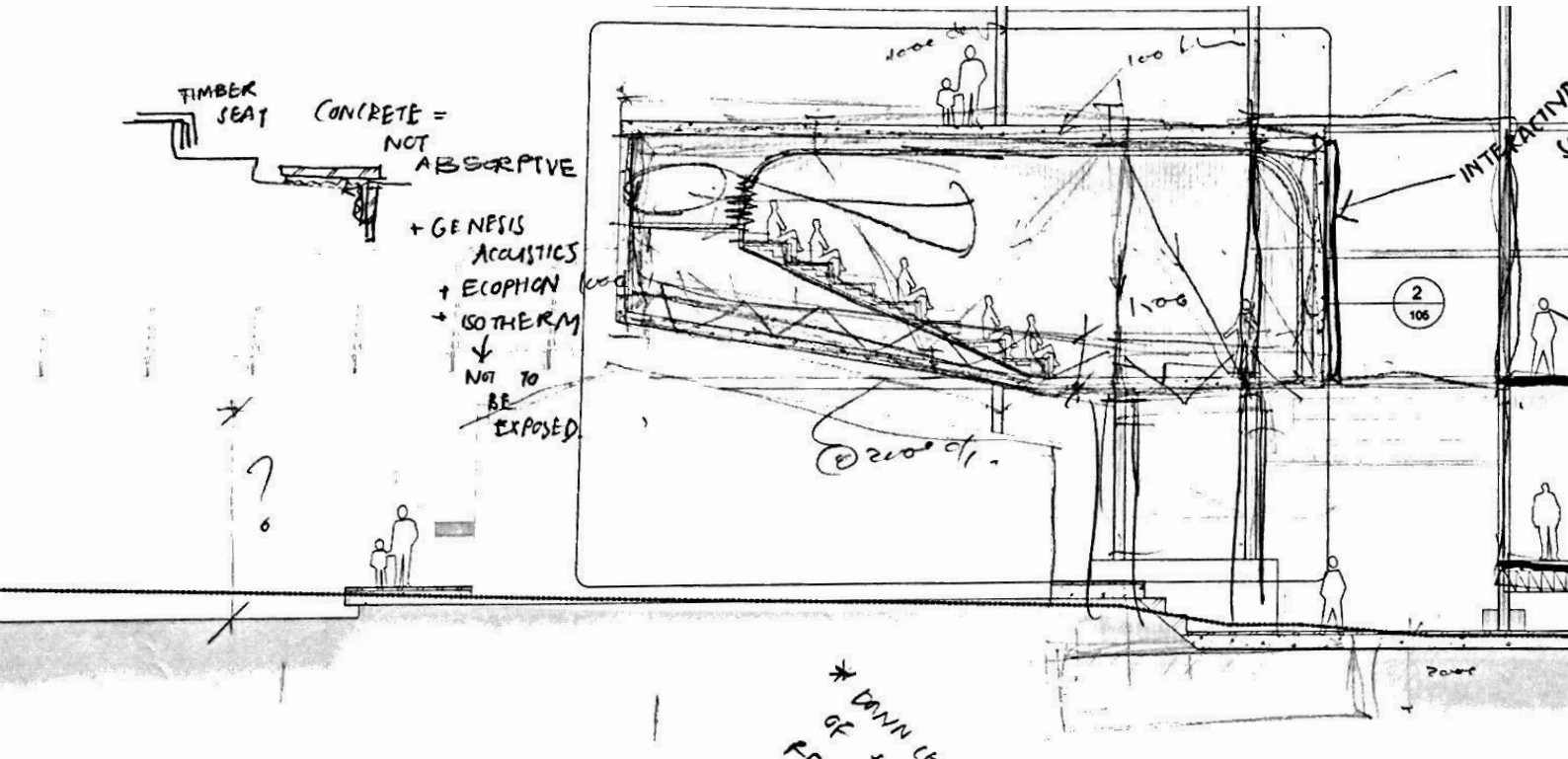
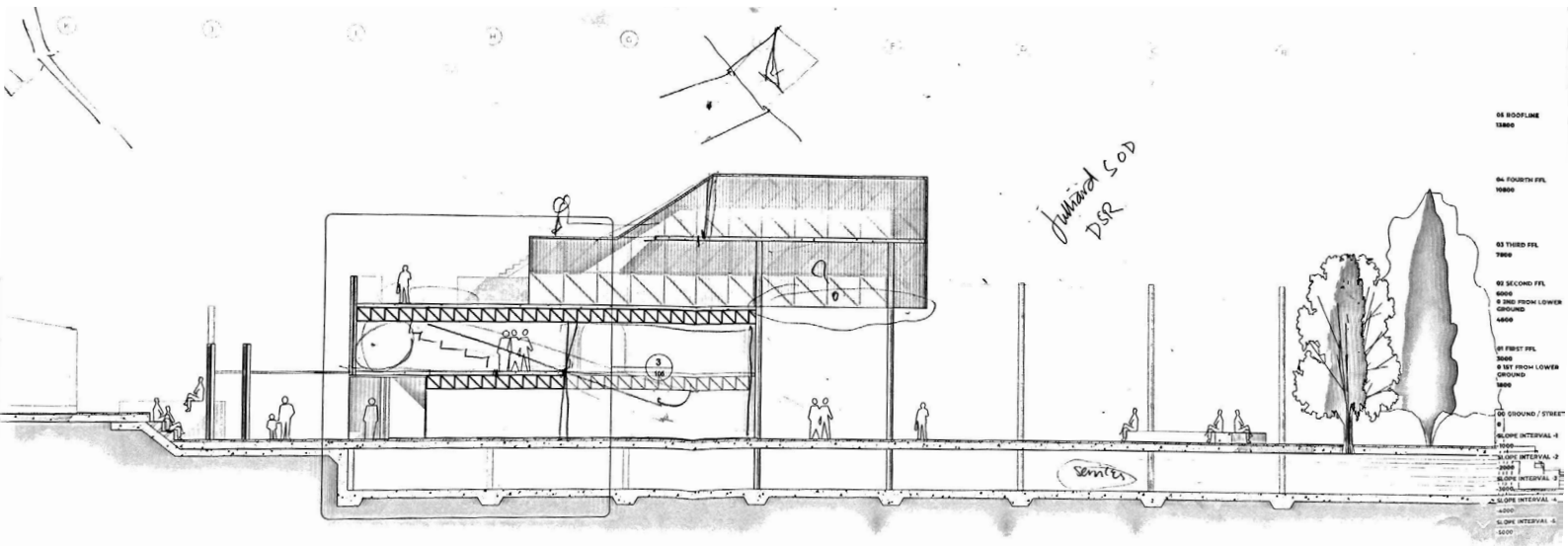
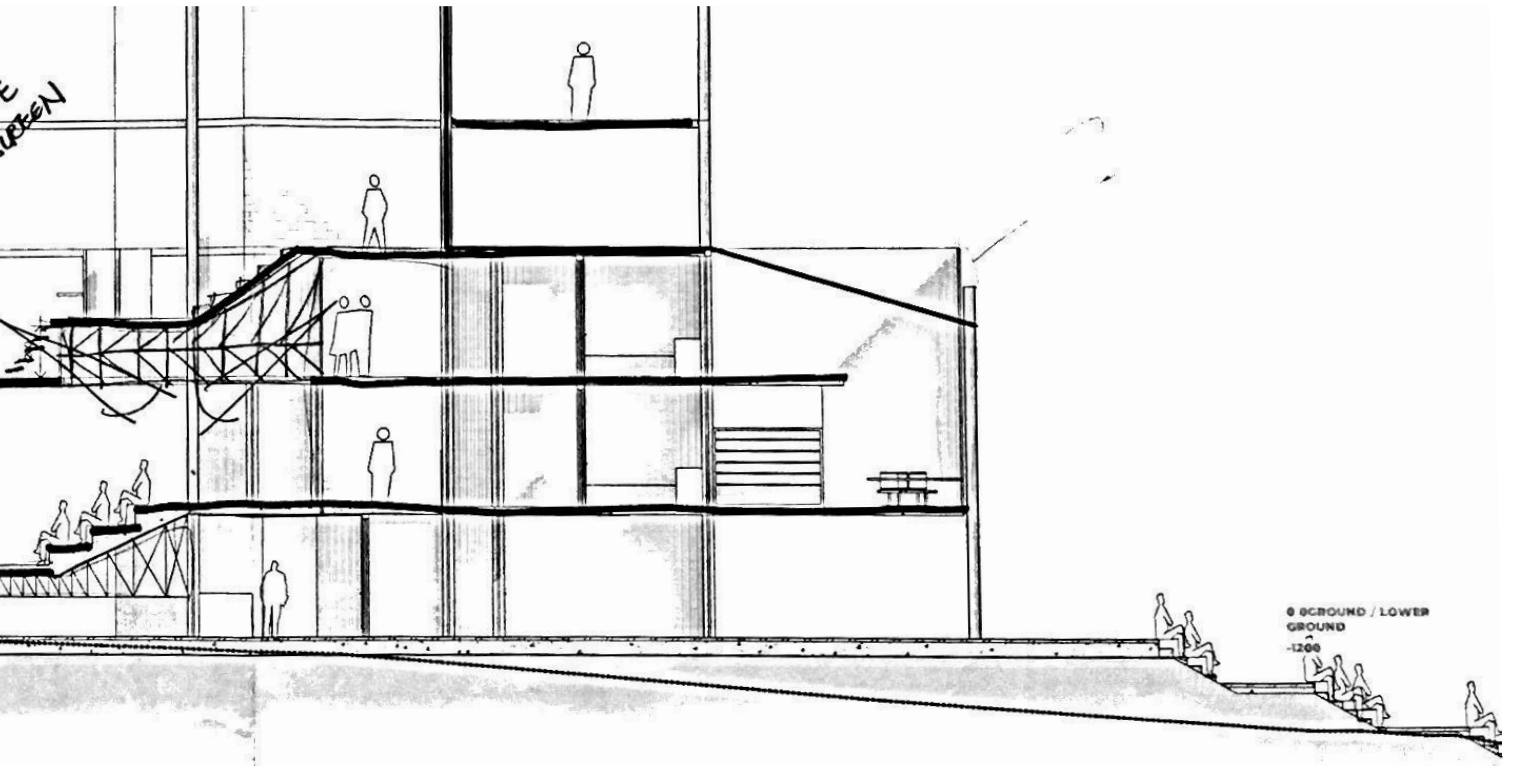


FIGURE 5.25
The levels and techtonics of
the polyvalent hall.
(Author, 2018)

09



09



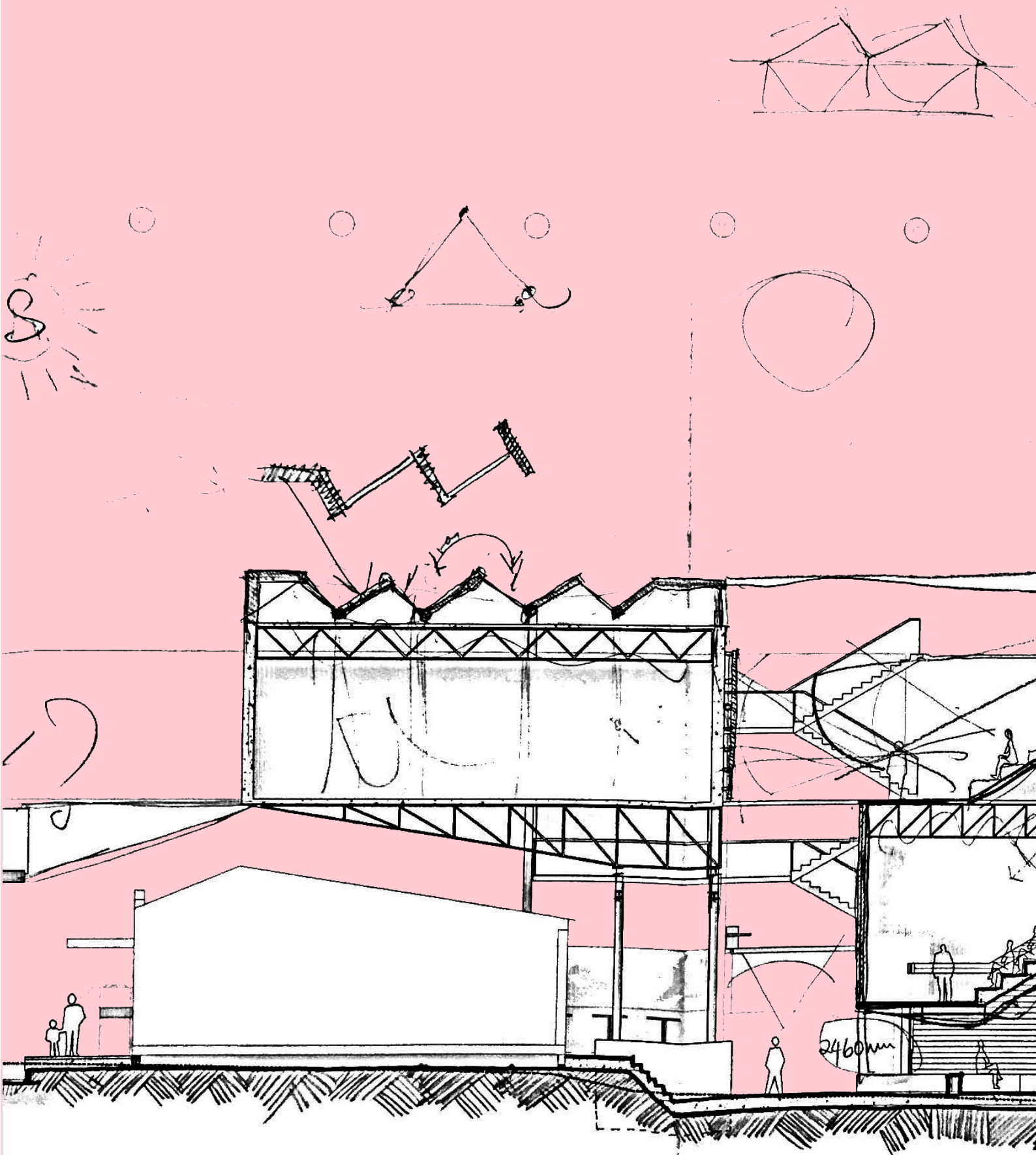
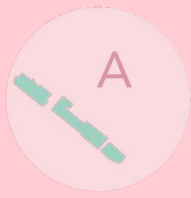
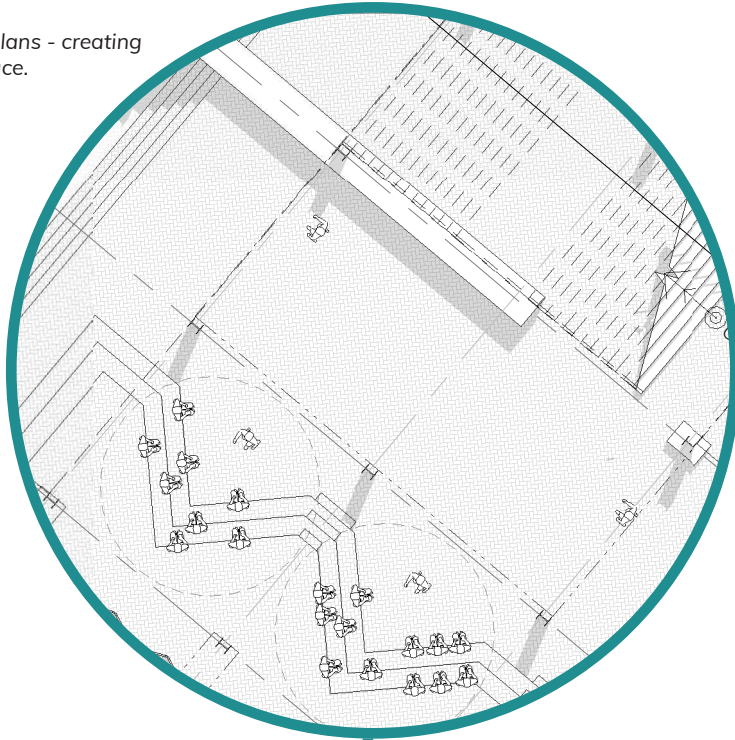
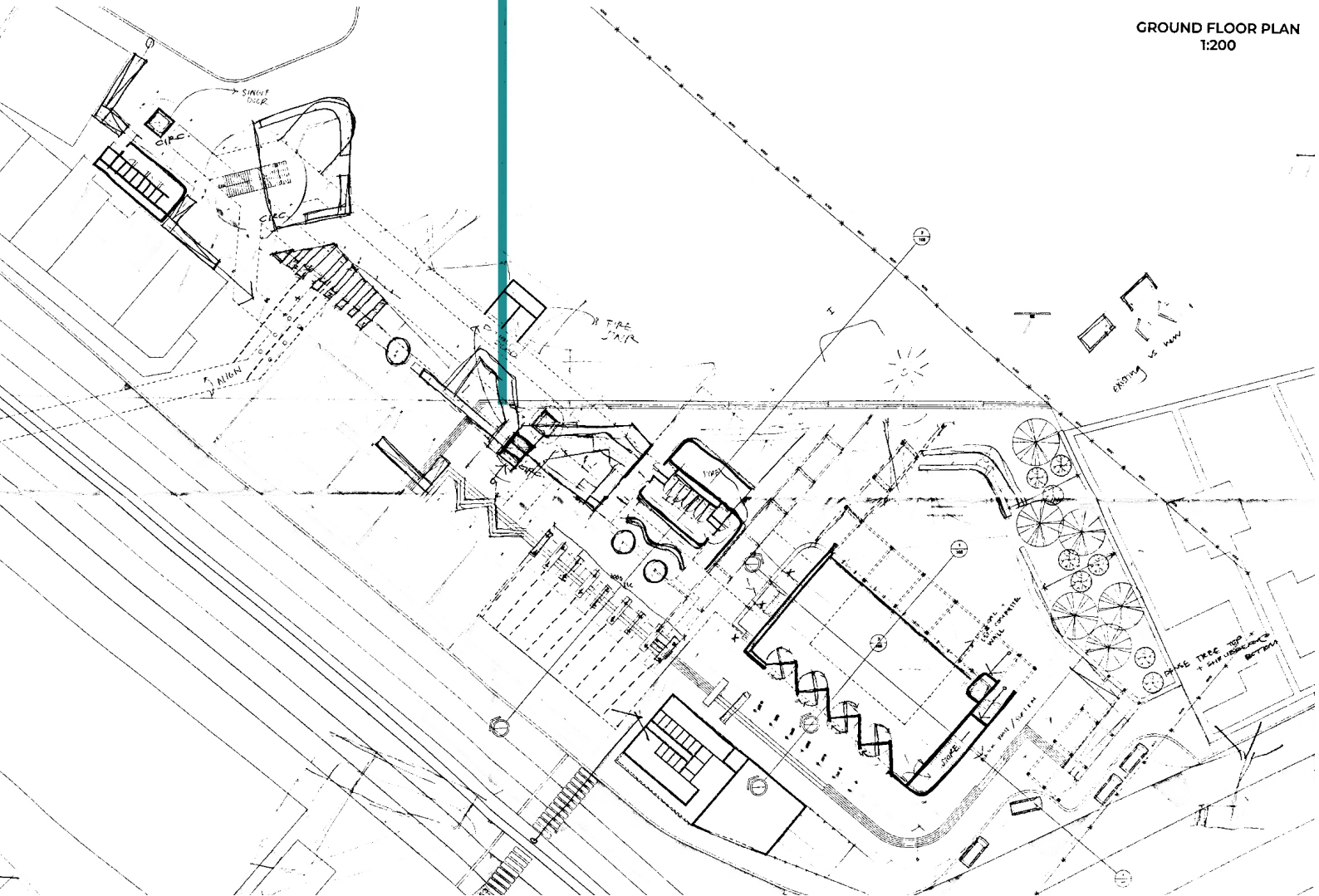


FIGURE 5.28
Toward final plans - creating
pockets of space.
(Author, 2018)



Understanding the need for secondary learning spaces and points of interaction in order to influence the spontaneous meeting and interaction of people stems from reviewing the nature of creativity and innovation in education.

Placing pockets of pause space throughout the building thus allows for each of these spaces to alter their nature from a space for learning to a homework area, lunch spot or meeting place for friends.



GROUND FLOOR PLAN
1:200

- 5.1 defining and designing the 'in-between'
- 5.2 translating thoughts into space
- 5.3 constructing space
- 5.4 program in space

- polyvalent hall / dance hall / lecture hall
- vertical circulation cores - stair & elevator
- person pods / meeting pods / homework pods
- digi comms office + solutionist centre
- impromptu stage / performance space / outdoor lecture
- meet-cute seating + interaction stations
- formal flexible learning spaces

5.4 program in space

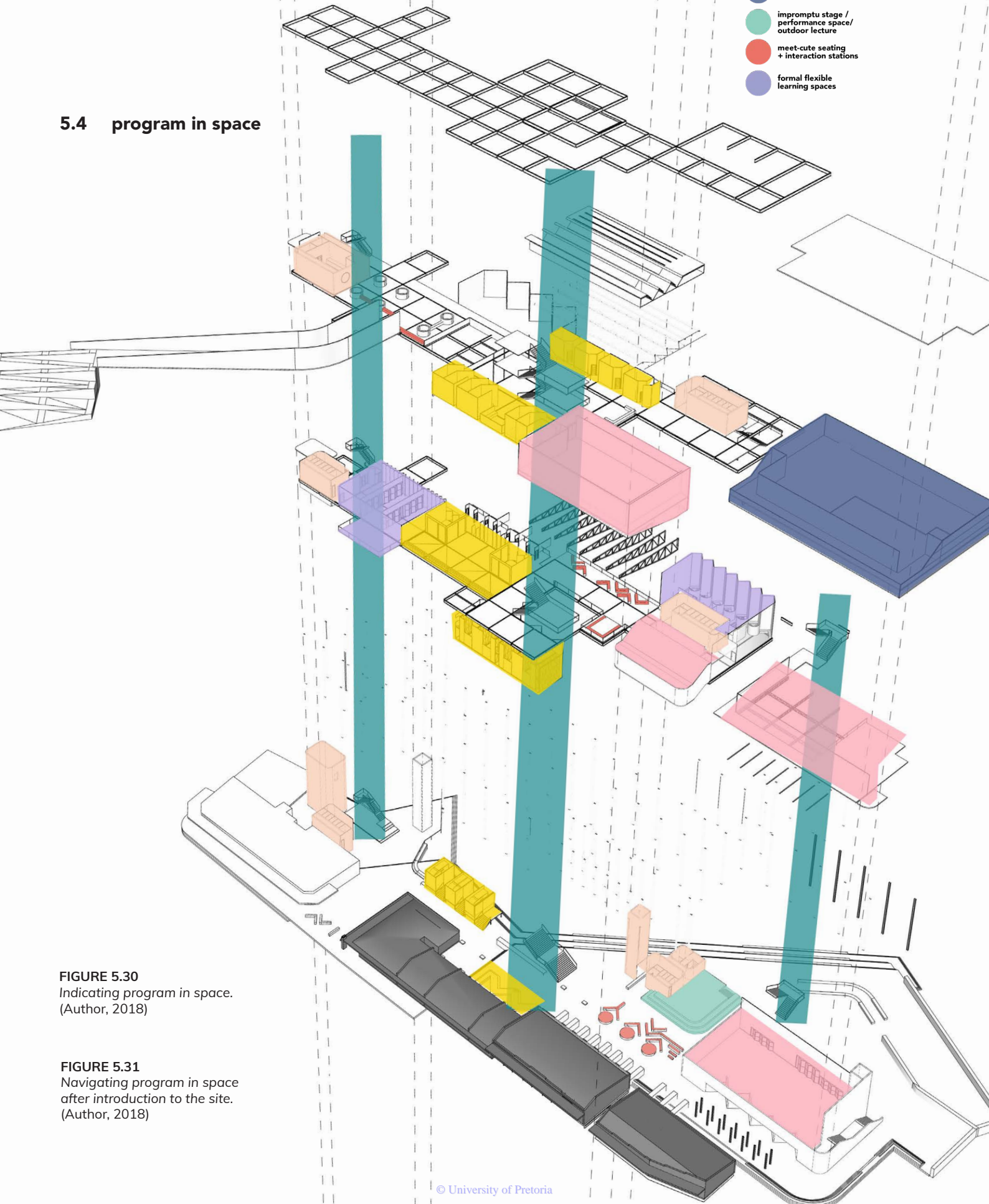
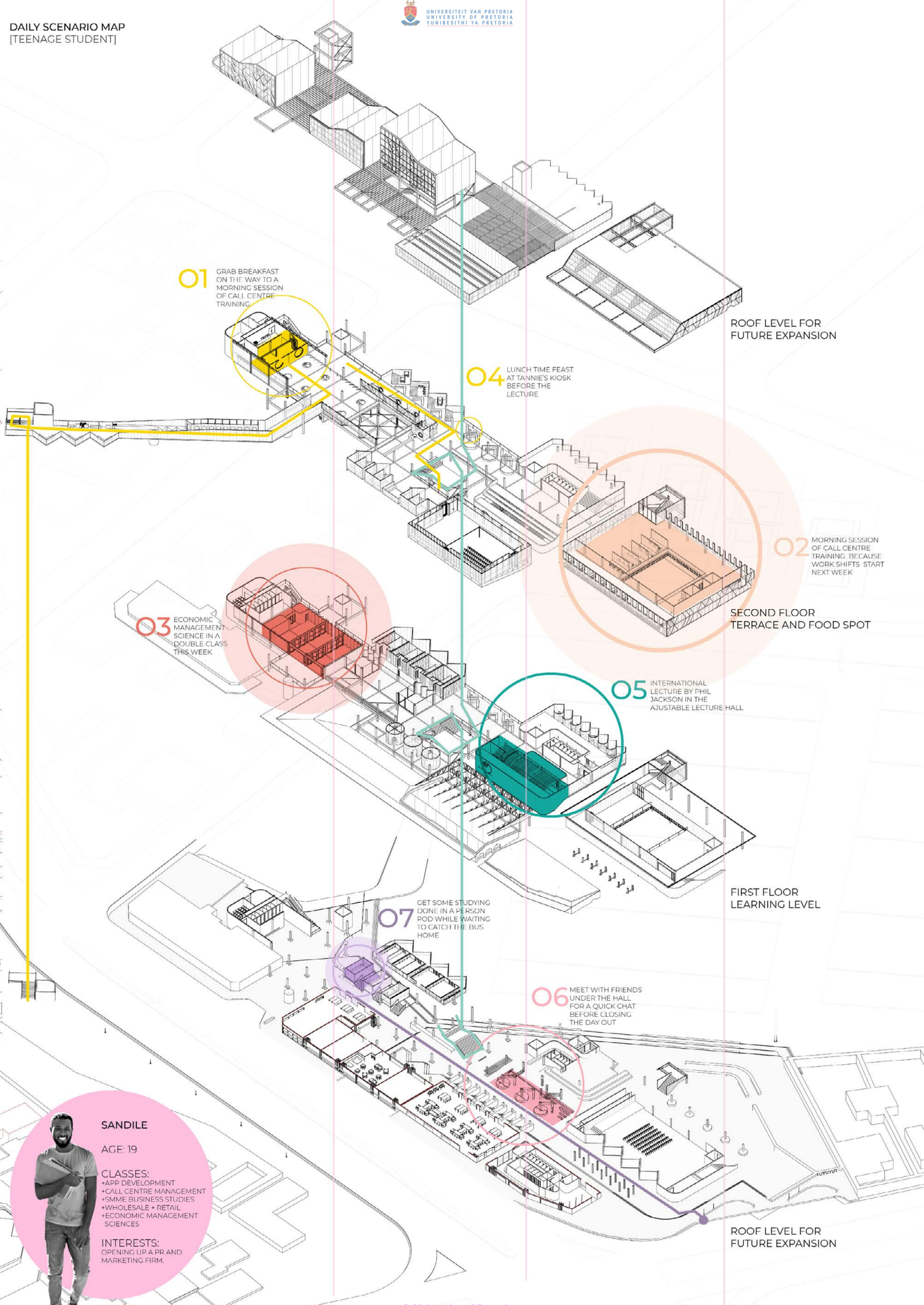


FIGURE 5.30
Indicating program in space.
(Author, 2018)

FIGURE 5.31
Navigating program in space
after introduction to the site.
(Author, 2018)



01 GRAB BREAKFAST ON THE WAY TO A MORNING SESSION OF CALL CENTRE TRAINING

04 LUNCH TIME FEAST AT TANNIE'S KIOSK BEFORE THE LECTURE

02 MORNING SESSION OF CALL CENTRE TRAINING BECAUSE WORK SHIFTS START NEXT WEEK

03 ECONOMIC MANAGEMENT SCIENCE IN A DOUBLE CLASS THIS WEEK

SECOND FLOOR TERRACE AND FOOD SPOT

05 INTERNATIONAL LECTURE BY PHIL JACKSON IN THE ADJUSTABLE LECTURE HALL

FIRST FLOOR LEARNING LEVEL

07 GET SOME STUDYING DONE IN A PERSON POD WHILE WAITING TO CATCH THE BUS HOME

06 MEET WITH FRIENDS UNDER THE HALL FOR A QUICK CHAT BEFORE CLOSING THE DAY OUT

ROOF LEVEL FOR FUTURE EXPANSION


SANDILE

AGE: 19

CLASSES:
+APP DEVELOPMENT
+CALL CENTRE MANAGEMENT
+SMME BUSINESS STUDIES
+WHOLESALE + RETAIL
+ECONOMIC MANAGEMENT SCIENCES

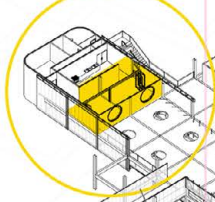
INTERESTS:
OPENING UP A PR AND MARKETING FIRM.





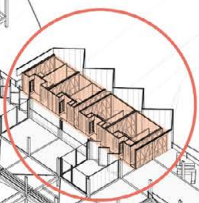
TAMMY
AGE: 43
CLASSES:
• CHILD CARE
• NURSING
• ANCILLARY HEALTHCARE
• ECONOMIC MANAGEMENT SCIENCES
INTERESTS:
STARTING A NURSING HOME FOR DISABLED CHILDREN.

06 LUNCH TIME TREAT AT THE CAFE WHILE WATCHING A RUGBY PRACTICE



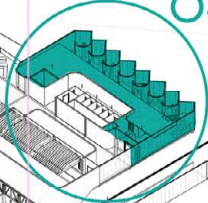
ROOF LEVEL FOR FUTURE EXPANSION

05 GET SOME WORK DONE IN A DAY RENTED POD BEFORE HOME DUTIES KICK IN AGAIN



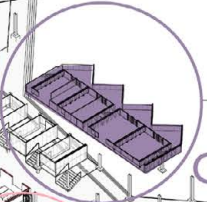
SECOND FLOOR TERRACE AND FOOD SPOT

04 INTERNATIONAL LECTURE BY PHIL JACKSON IN THE ADJUSTABLE LECTURE HALL

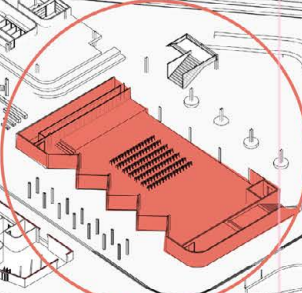


FIRST FLOOR LEARNING LEVEL

03 JOB INTERVIEW WITH A POTENTIAL EMPLOYER FOR PRACTICAL EXPERIENCE

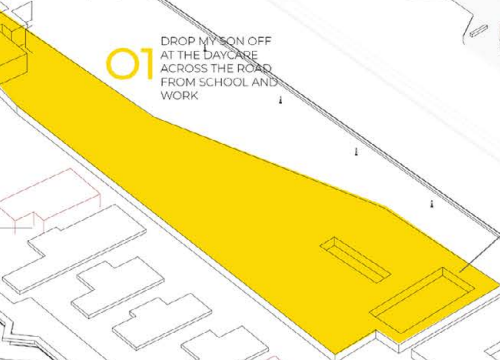


07 STOP PAST THE POLYVALENT HALL AND HAVE A QUICK LOOK AT THE CURRENT EXHIBITION

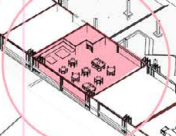


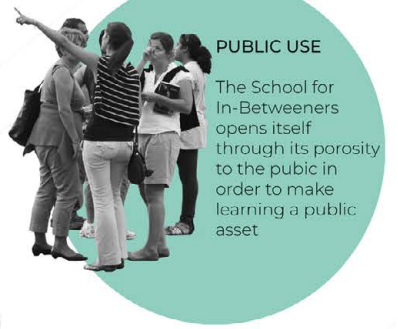
ROOF LEVEL FOR FUTURE EXPANSION

01 DROP MY SON OFF AT THE DAYCARE ACROSS THE ROAD FROM SCHOOL AND WORK



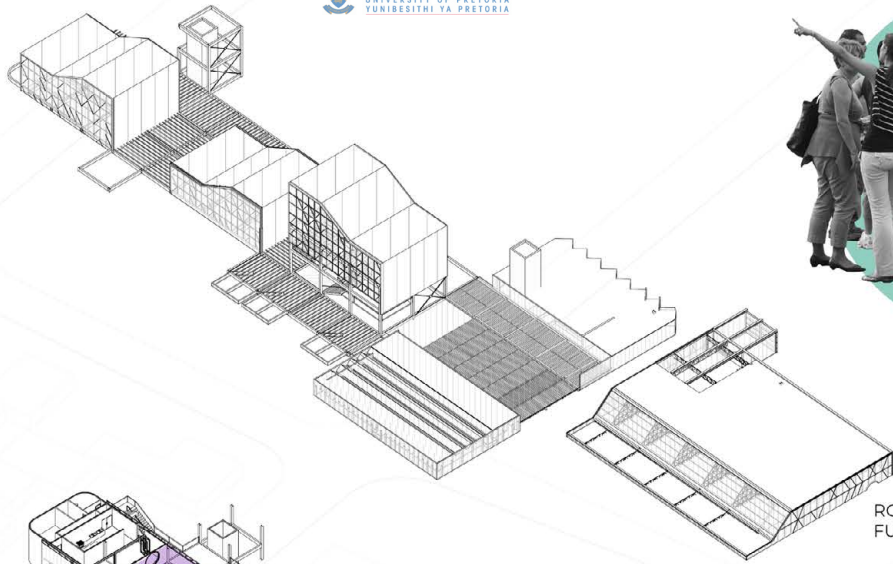
02 GRAB A CUP OF COFFEE BEFORE HEADING TO START THE DAY



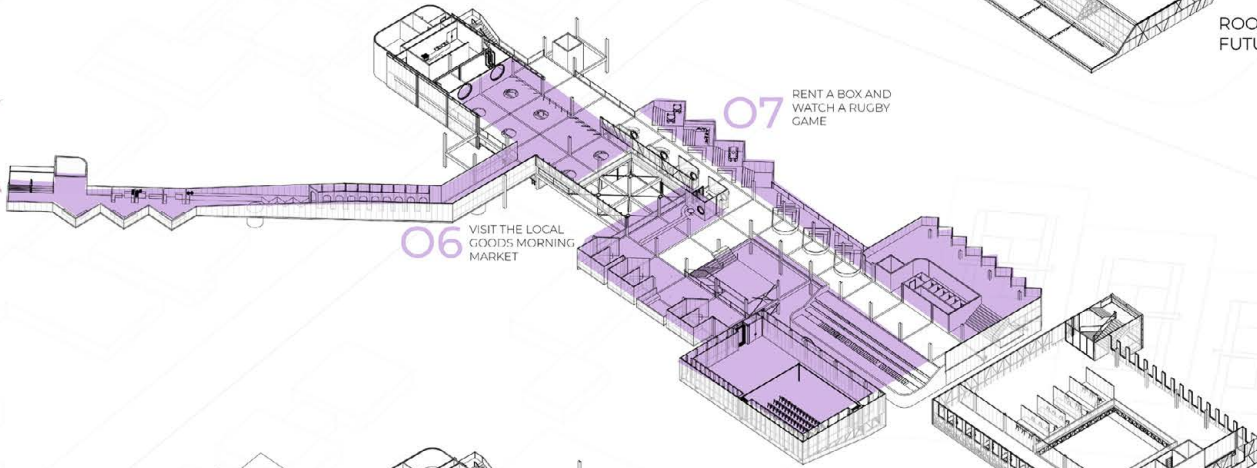


PUBLIC USE

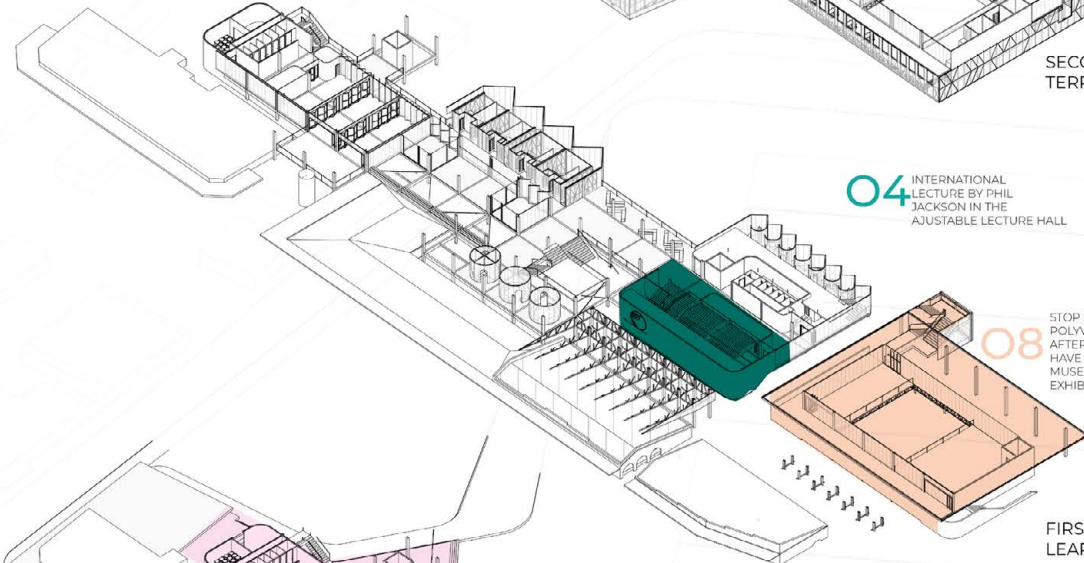
The School for In-Betweeners opens itself through its porosity to the public in order to make learning a public asset



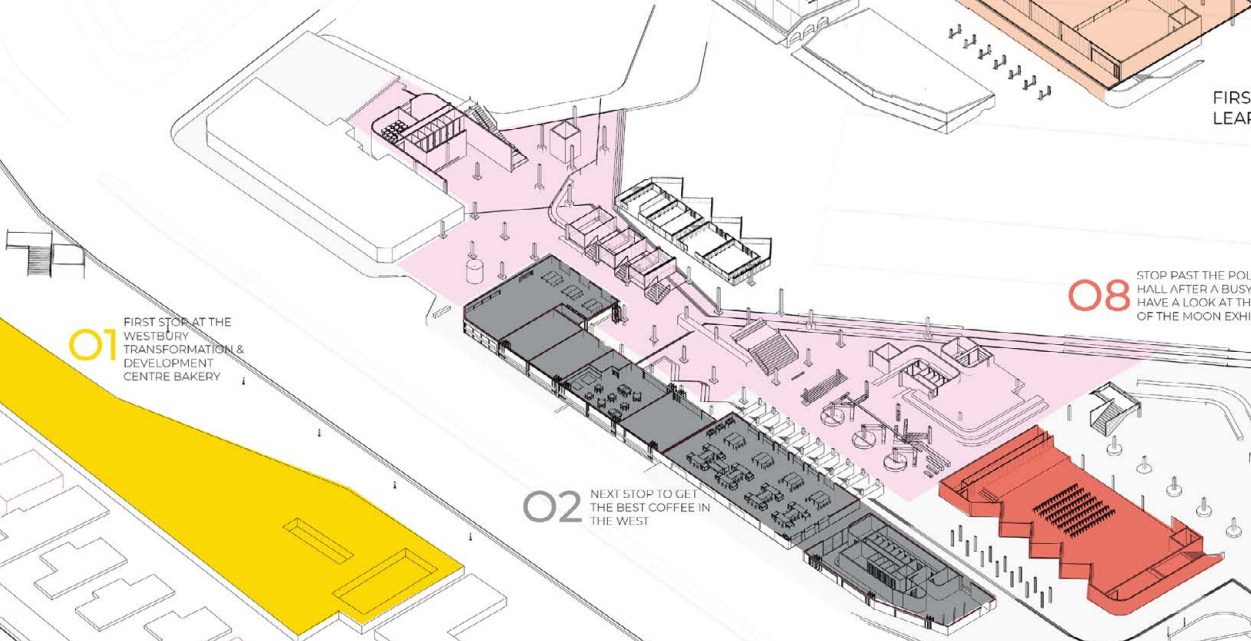
ROOF LEVEL FOR FUTURE EXPANSION



SECOND FLOOR TERRACE AND FOOD SPOT



FIRST FLOOR LEARNING LEVEL



ROOF LEVEL FOR FUTURE EXPANSION

01 FIRST STOP AT THE WESTBURY TRANSFORMATION & DEVELOPMENT CENTRE BAKERY

02 NEXT STOP TO GET THE BEST COFFEE IN THE WEST

06 VISIT THE LOCAL GOODS MORNING MARKET

07 RENT A BOX AND WATCH A RUGBY GAME

04 INTERNATIONAL LECTURE BY PHIL JACKSON IN THE ADJUSTABLE LECTURE HALL

08 STOP PAST THE POLYVALENT HALL AFTER A BUSY DAY AND HAVE A LOOK AT THE MUSEUM OF THE MOON EXHIBITION

08 STOP PAST THE POLYVALENT HALL AFTER A BUSY DAY AND HAVE A LOOK AT THE MUSEUM OF THE MOON EXHIBITION

- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

P R O D U C T // O U T L I N E

This section explores the design response in its final iteration. This final stage of the design is understood in its structural and technical components as being a confluence of the site, the theoretical design devices, the resulting design principles and the response to research questions posed.

The structure and technology is further understood owing to these informants as a frame and infill structure with each aspect adopting particular identities and materiality in response to the needs of the place-making devices.



O6

- PRODUCT -

- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

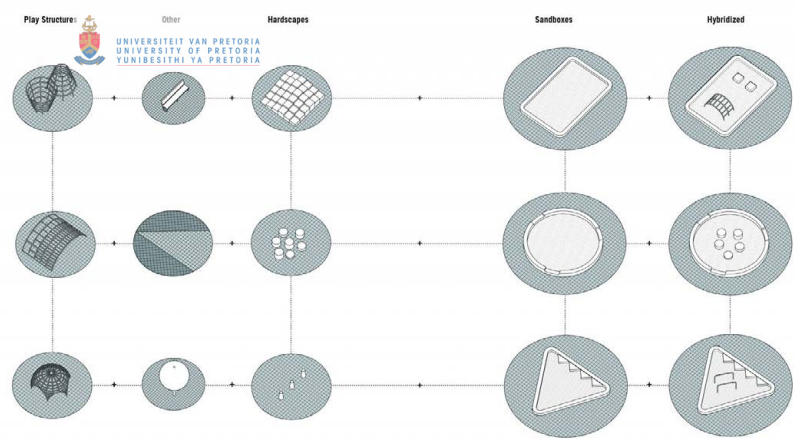


FIGURE 6
Components of Van Eyck's playgrounds.
(Van Leur T., 2015)

6.1 flexibility and free space

The need for investigation into the field of flexibility within this research project lies in the nature of program and longevity of the structure. It relates to the premise of time and change as constant conditions, where built form, a fixed element, is, without the notion of flexibility, inconsistent with this condition. Therefore, flexibility allows for flux in built form through introducing elements of autonomy throughout the building.

Firstly, a distinction is to be made between flexibility and adaptability. Flexibility, in this case, refers to the ability of spaces to be both extended and collapsed according to the size of space needed by a user. It refers to panel systems and folding stacking elements which enable designed and allocated spaces to change their nature according to the temporal functionality of that space. In support of this definition, the writings and designs of Dutch architect, Herman Hertzberger give evidence of this type of flexibility.

Space that is open-ended and therefore generic is explained by Hertzberger to be devoid of meaning and identity. In the place of this, he introduces the notion of 'polyvalence' (Hertzberger, 2008, p. 113) as previously explored. Polyvalent space therefore concentrates on the potential of as many place-making opportunities as possible within a designated and designed space (Hertzberger, 2008, p. 113). Hertzberger further explores the notion that architects must facilitate buildings without neutrality in which each space has a distinct character that is explicit and recognisable, however, this character need not be imposing or prescriptive (Hertzberger, 2008, p. 114).

Flexibility, as a design principle, therefore is communicative of a space that is descriptive but not prescriptive. This allows for a user to have democratic governance over spaces in order to suit the conditions of change and time.

It is this sentiment which both Hertzberger and Brand share. Brand, in his novel, *How Buildings Learn*, 1995, further emphasises and advises against over-specific and over-expressive forms and fabrications, seeking to "distil the essence without lapsing into too explicit a response" (Brand, 1995, p. 59).

Brand highlights that buildings within urban conditions in particular are constantly under the pressures of regenerating themselves to suit new users and uses. A 'learning building' (Brand, 1995) is therefore one which adopts the notions of changing spaces. This overcomes the need for a full fit out and re purposing of a structure in which it is stripped to its bones and re-infilled (Brand, 1995, p. 181).

Above this, it may be understood that flexibility of space exists on a scale of architectural adaptability in order of its sophistication. This scale, explored by Lelieveld et al. in *Adaptable Architecture*, 2007, understands the interplay of flexibility and adaptability as twin phenomena that act at different scales and are not interchangeable (Lelieveld, Voorbij, & Poelman, 2007, p. 247)

Flexibility, on this scale refers to specific adjustments to specific components of the building (Lelieveld, Voorbij, & Poelman, 2007, p. 248). These actions are therefore directly controlled by the user – an external force. This further emphasises the project intention in which each user is seen as a body with the potential of creating just spaces within an unjust context. This is implemented through viewing the user as a vehicle of democratic space production where the space assumes the identity as being created and changed by the human hand. This in turn influences the social relations of a community in relativity to the spaces in which they occur.

Smart adaptability, the opposing spectrum, explores architectural components as having "the ability of self-initiative" (Lelieveld, Voorbij, & Poelman, 2007, p. 249). This system is seen to be self-learning and digital in that it is able to automate and adjust itself in relation to the needs of a user or environmental changes. It is this type of flexibility over which the user, in this case, is seen to have little governance. Smart adaptability also further references changes to space that are removed from a tactile environment to one that is only technologically flexible.

The conception of free space is therefore limited in the case of technological adaptation as the user is bound by the reliance on digital systems to perform particular changes to space.

Free space embraces principles of Dutch architect, Aldo van Eyck's playgrounds. His plans embrace functional separation with simultaneous integral planning in order to achieve dualisms of use in space (Withagen & Caljouw, 2017).

For van Eyck, functionalism has killed creativity (van Eyck, 1959) in that it abandons the human aspect of use. A building is more than a sum of its functions, where architecture is to be the facilitator of human activity through promoting human interaction (van Eyck, 1959). The building, in this case, becomes participative in the enabling of these moments of interaction evident in designing the in-between spaces.

In his projects, which embody the principle of 'city as playground', van Eyck finds opportunity for testing conceptions of "architecture, relativity and imagination (Oudenampsen, 2010, p. 26)." A place for learning may therefore be seen in the same light. Relativity explores the connections between elements (Withagen & Caljouw, 2017) which are determined by their mutual functionality rather than principles of hierarchical ordering.

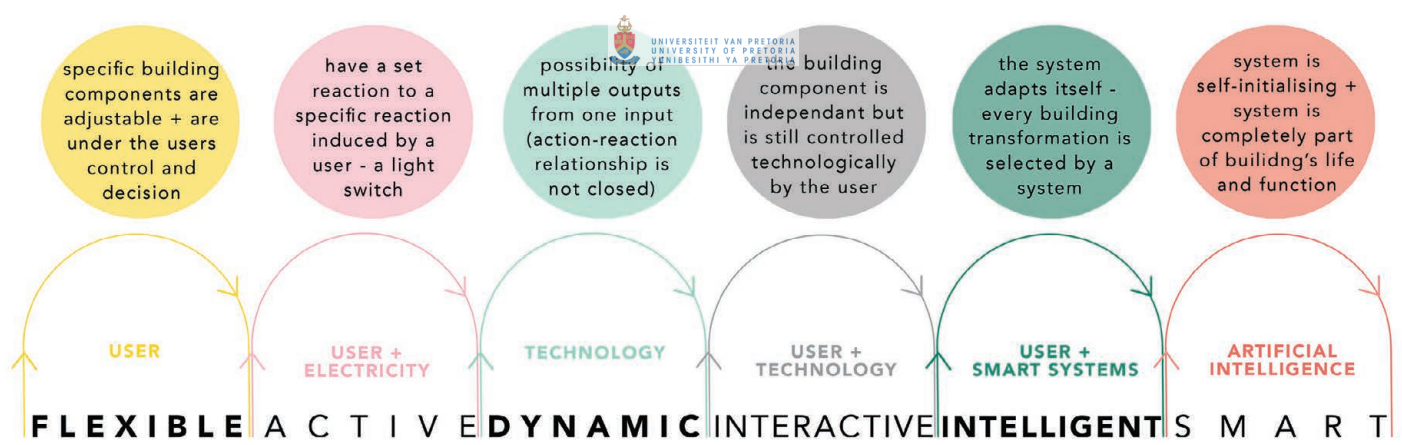


FIGURE 6.1
The matrix of adaptability.
(Adapted from Lelieveld, Voorbij, & Poelman, 2007 by Author, 2018)

Free space and flexibility, although understood to be of the same nature, enable one another. Flexibility in architectural components through non-prescriptive use facilitates free space. This is achieved through allowing for multiple iterations of one space. This same thought is achieved in the design of van Eyck's playgrounds which, in their implementation, at the birth of Structuralism (Withagen & Caljouw, 2017), proposed a different conception of space.

The equipment was designed with minimalist intention in order to stimulate the imaginative use of the user, in particular, children. Through this openness, the space could be appropriated to interpretation. Modularity in the playgrounds (Oudenampsen, 2010, p. 29) through the use of repeating elements such as the sandpit, stepping stones and hemispheric jungle gyms, allowed for the reconfiguration of these elements in multiple "polycentric compositions depending on the requirements of the local environment (Oudenampsen, 2010, p. 29)."

Above minimalist intention and modularity, van Eyck designed his spaces through assessing the relationship of the urban environment and the playground as being an 'in-between' or 'interstitial' space (Oudenampsen, 2010). It is owing to its temporal nature that the playground viewed in this light.

In one day, each playground may evolve from a classroom to a home or from a garden to the scene of a zombie apocalypse, all through giving each user an autonomy over that space.

It is this same conception of use, in which the user is freed, that this new educational typology seeks to adopt.

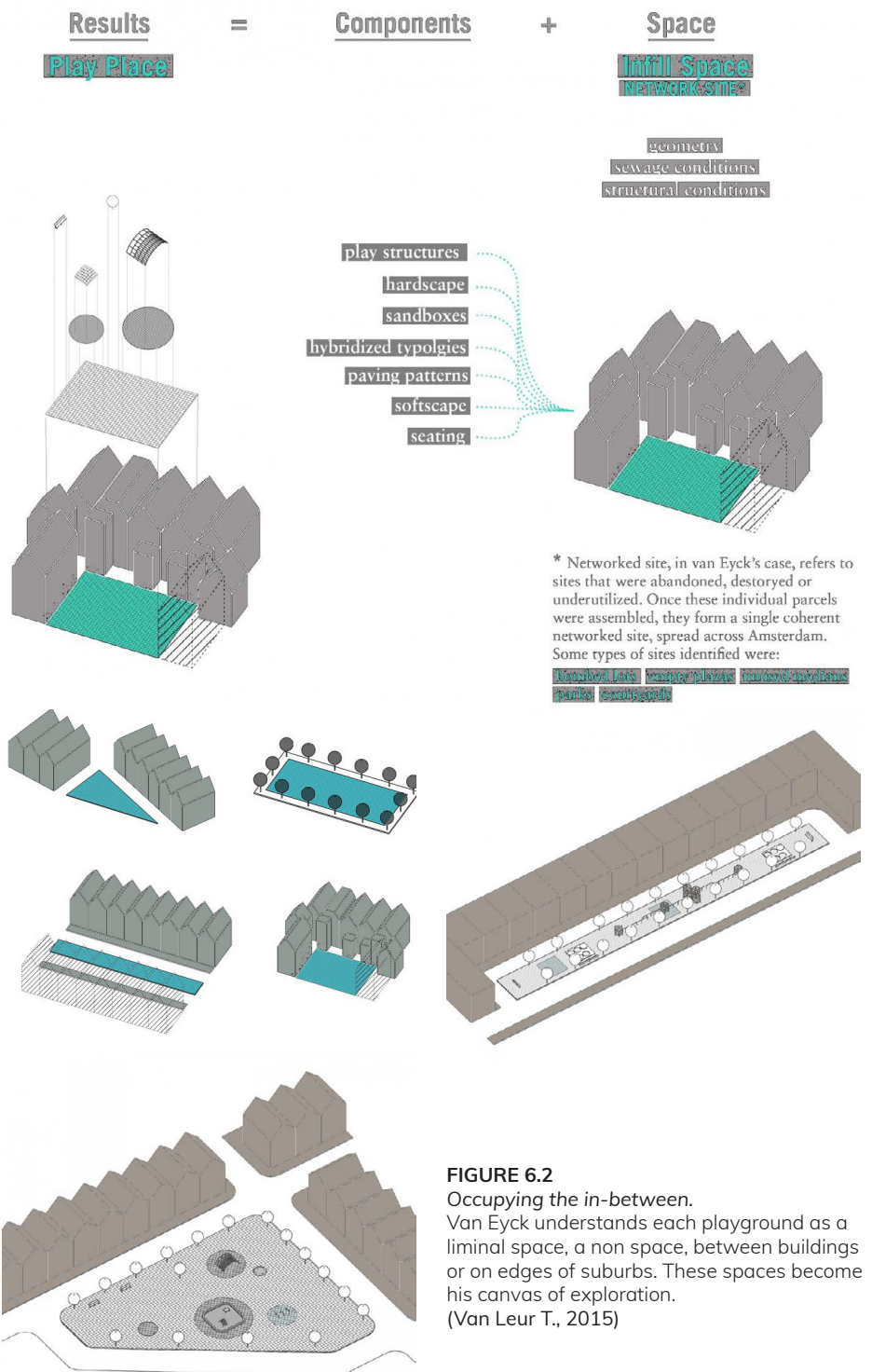


FIGURE 6.2
Occupying the in-between.
Van Eyck understands each playground as a liminal space, a non space, between buildings or on edges of suburbs. These spaces become his canvas of exploration.
(Van Leur T., 2015)

- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

6.2 exploring flexibility

The nature of flexibility as explored previously (on the adaptability scale) is understood as being a ratio of space with its possible divisions. This notion of the ratio is further influenced by the mat-building principles on which this spatial exploration is partially grounded.

The case of this exploration sees the key ratio being 2:1 as this allows for multiple iterations in the case of the implemented 6 by 6 meter grid.

This allows the grid to be synthesized into modules of 3 by 3, 12 by 12 or even 9 by 9 where necessary. Further, this grid may be extrapolated as increments of 2 meters or even 1.5 meters.

Through this understanding, the ability of a space to extend and contract is then enabled — further enabling the users' governance over that space. These explorations of flexibility are particularly evidenced in;

- the polyvalent hall,
- the person pods and in
- the extendable learning spaces.

Furthermore, the 2:1 ratio of space allows for efficient acoustic performance owing to the ratio of possible reflections.

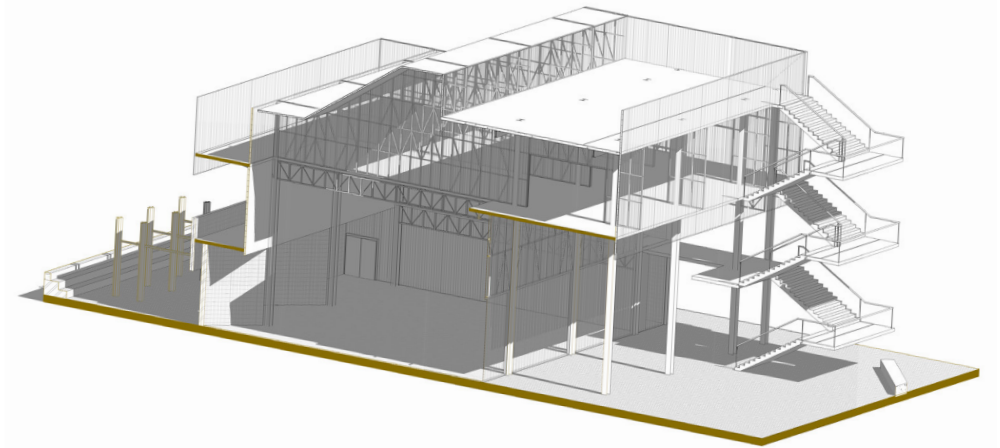
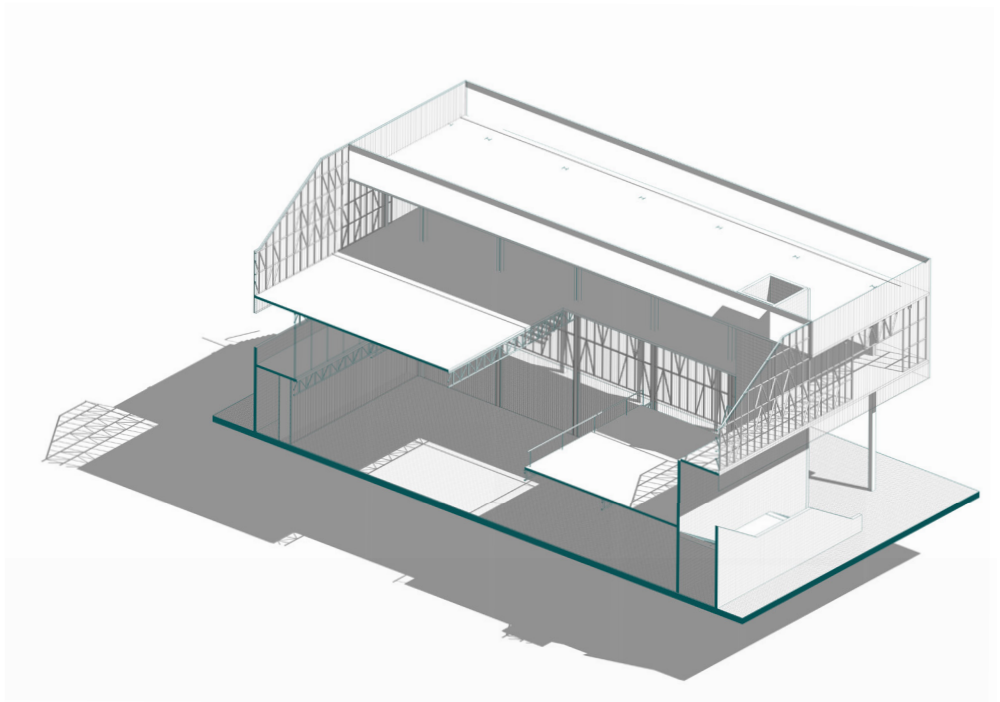


FIGURE 6.3.1

The extension of the hall to the outside space enables the hall to act as a stage area with the outside as seating. (Author, 2018)

FIGURE 6.3.2

The smallest modules of the hall enable small meeting spaces such as classrooms or seminar spaces. (Author, 2018)

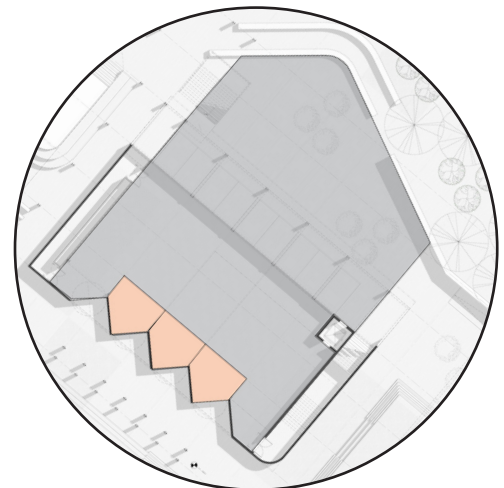
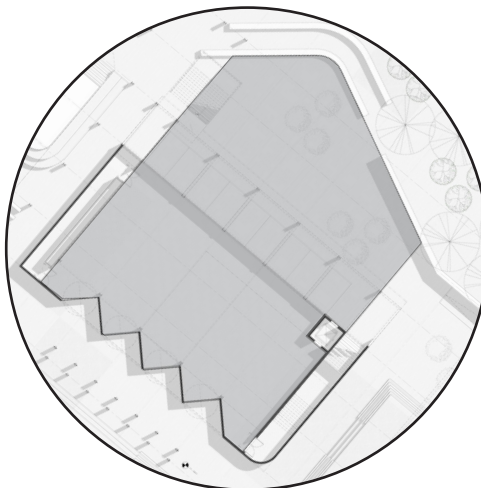
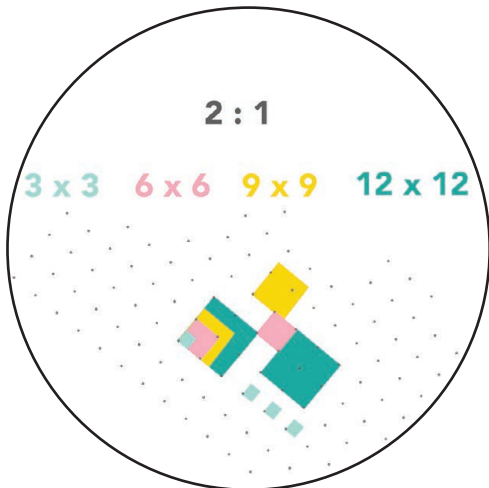


FIGURE 6.3
Exploring flexibility in the
polyvalent hall.
(Author, 2018)

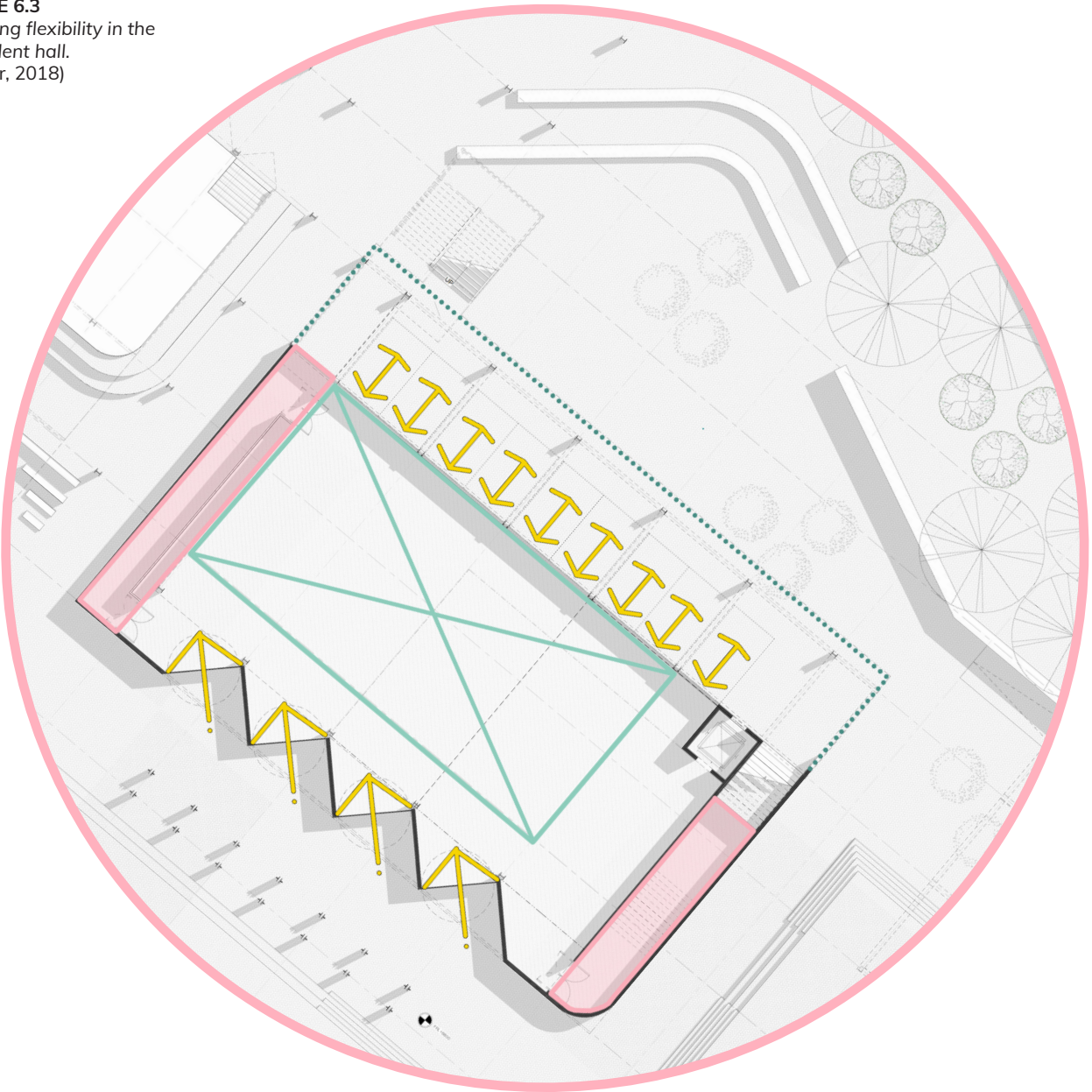


FIGURE 6.3.3
The largest portion of the hall allows for
a concert performance or community
meeting. The ratio of this space is 2:1.
(Author, 2018)

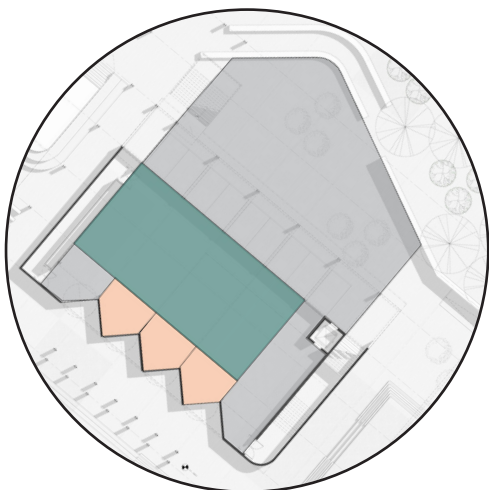


FIGURE 6.3.4
The bulk of the hall may be divided
into two portions in order to allow for
simultaneous events.
(Author, 2018)

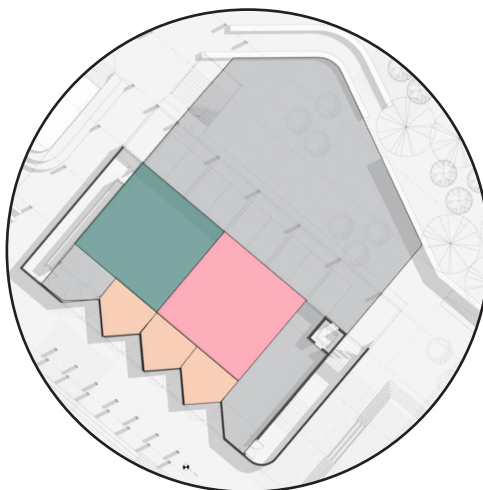


FIGURE 6.3.5
The layering of divisions within the hall
in order to express its flexibility.
(Author, 2018)

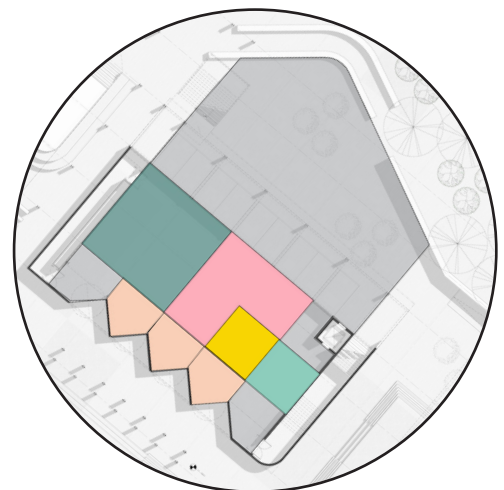


FIGURE 6.4
Exploring flexibility in the
expandable learning spaces.
(Author, 2018)

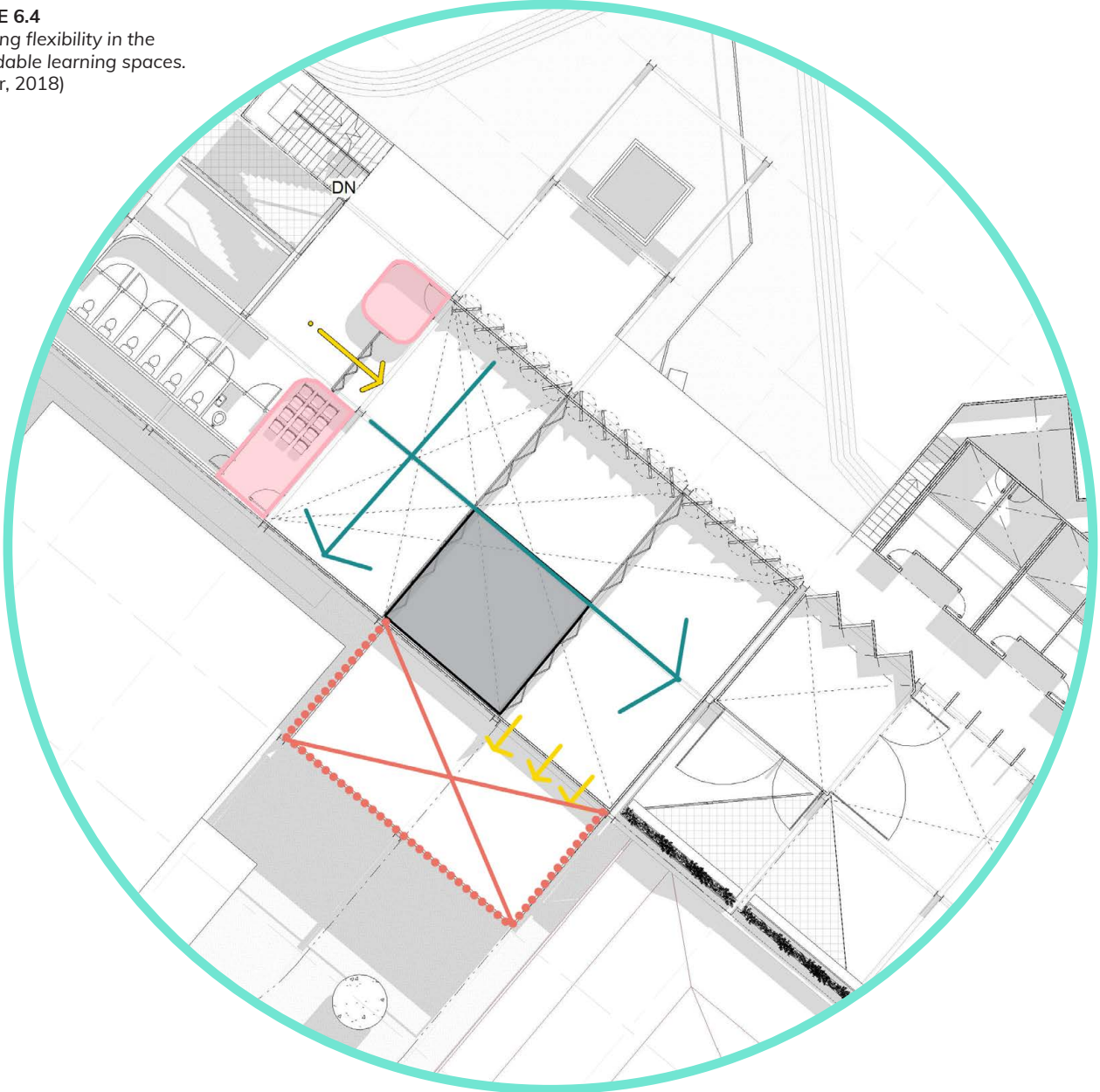


FIGURE 6.4.1
Single learning space defined by the 2:1
ratio with the opportunity for expanding
the space to a double class.
(Author, 2018)

FIGURE 6.4.2
The expansion of the space is enabled
by the removal of all internal columns
and stack-away doors as dividers.
(Author, 2018)

FIGURE 6.4.3
Full large scale space across all three
learning bays.
(Author, 2018)

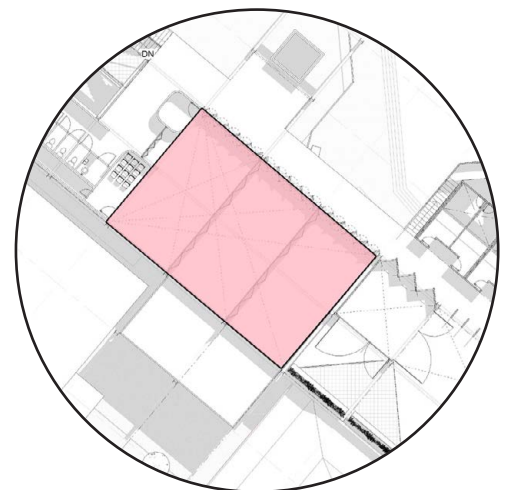
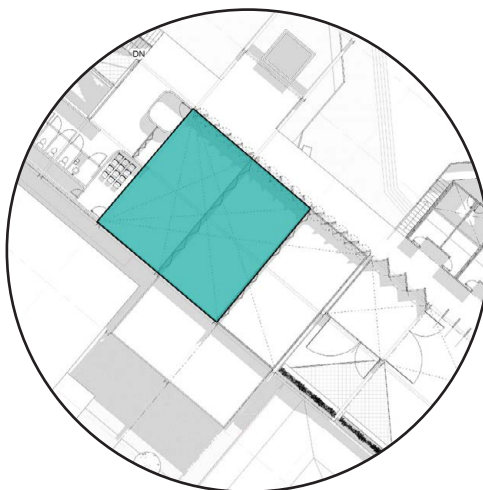
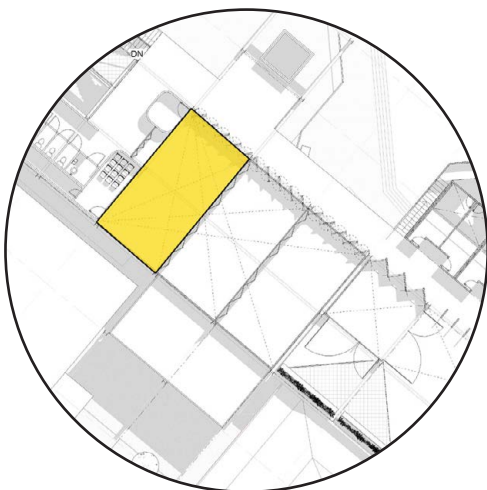


FIGURE 6.5
Exploring flexibility in the
collapsible learning spaces.
(Author, 2018)

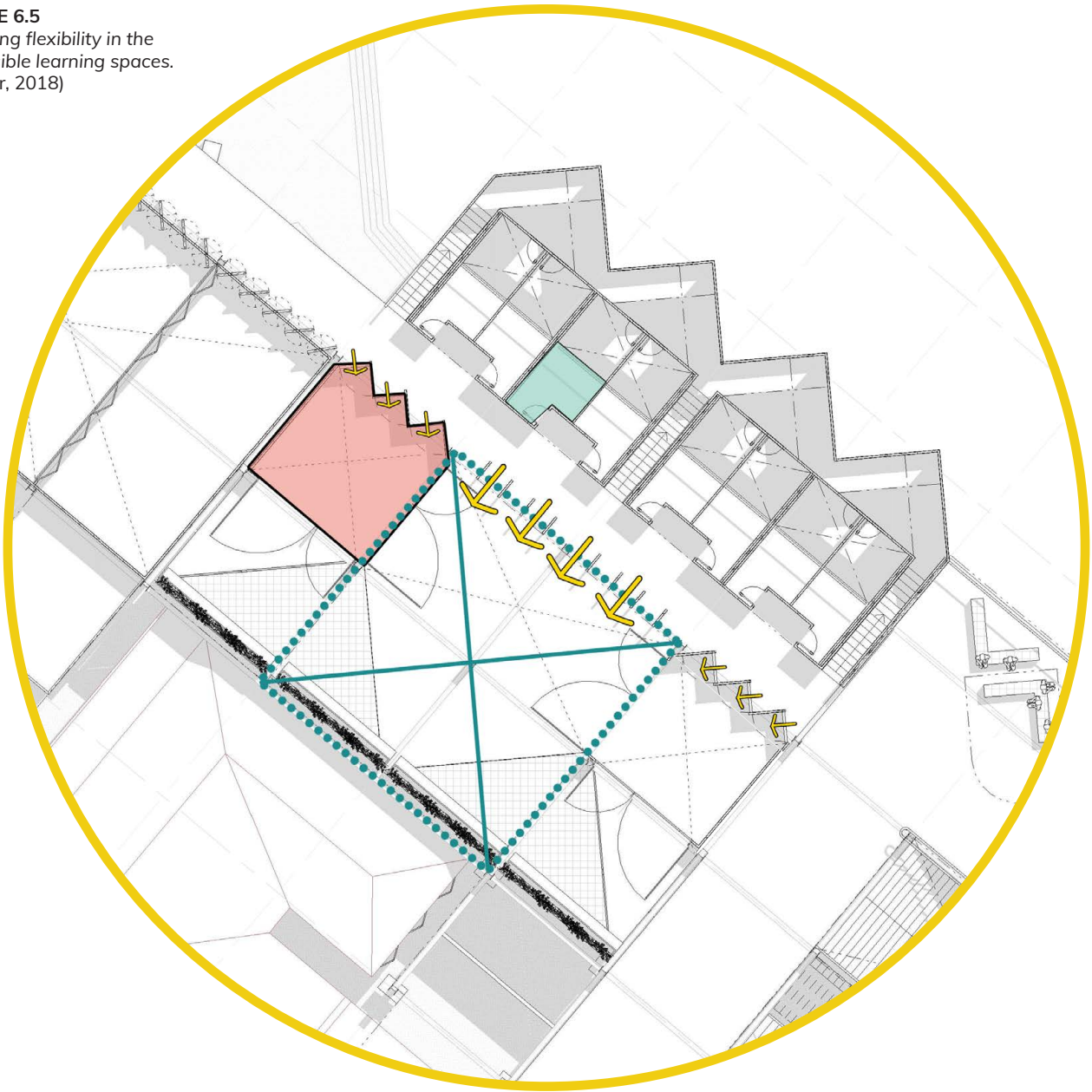
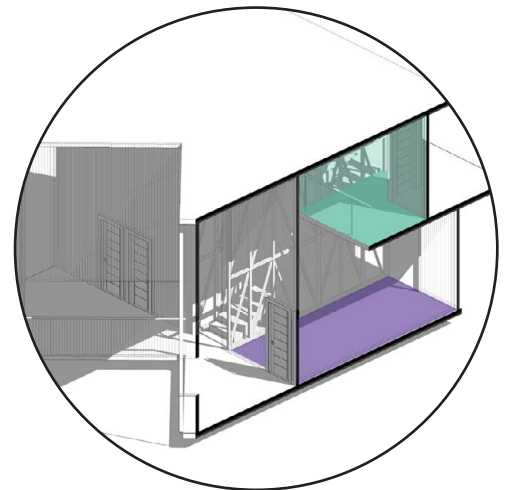
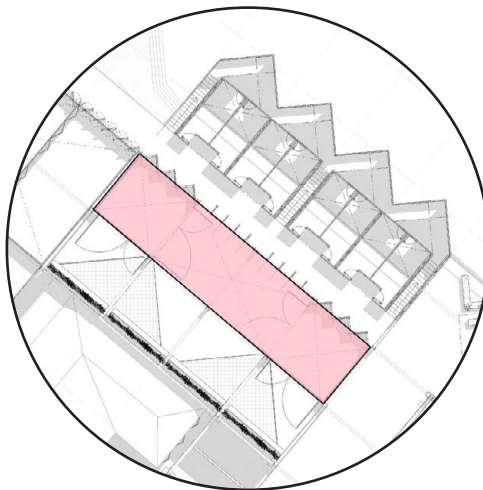
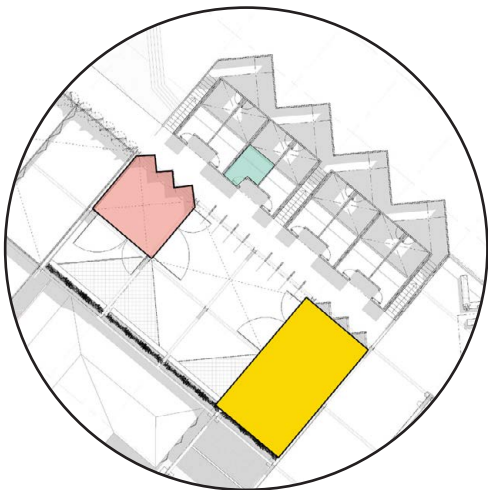
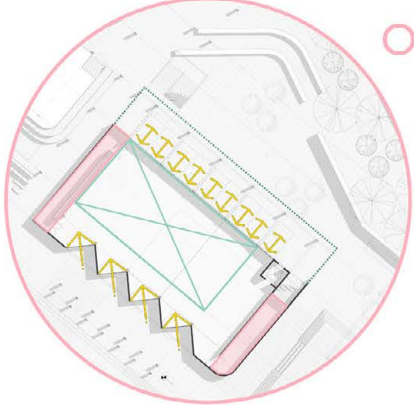
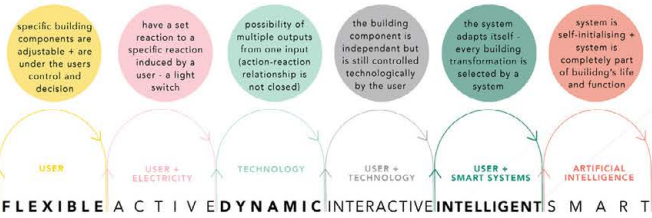


FIGURE 6.5.1
The collapsible spaces refer to the 6x6
module that is able to open up to and
be enclosed from a central courtyard.
(Author, 2018)

FIGURE 6.5.2
These spaces work linearly and define
longer spaces for programs such as
workshop space.
(Author, 2018)

FIGURE 6.5.3
The meeting pod / person pod enables
multiplicity through its level differences.
The pod is also able to accommodate a
small (3 -4 people) mobile office.
(Author, 2018)

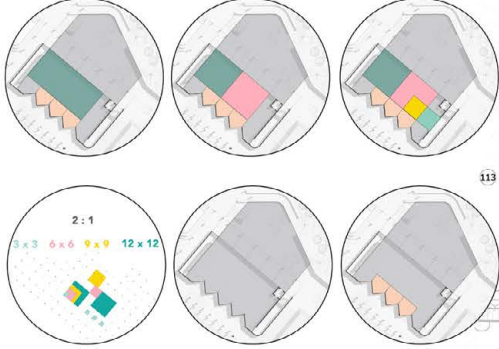




The largest portion of the hall allows for a concert performance or community meeting. The ratio of this space is 2:1

The bulk of the hall may be divided into two portions in order to allow for simultaneous events.

The layering of divisions within the hall in order to express its flexibility.



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02 THE COLLAPSIBLE LEARNING SPACES AND PERSON PODS



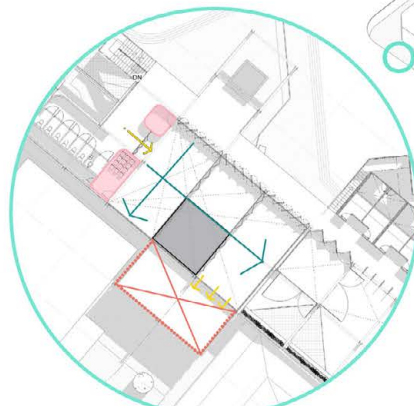
The collapsible spaces refer to the full module that is able to open up to and be enclosed from a central courtyard.

These spaces work linearly and define longer spaces for programs such as workshop space.

The meeting pod / person pod enables multiplicity through its level differences. The pod is also able to accommodate a small (3-4 people) mobile office.



03 THE EXPANDABLE LEARNING SPACES

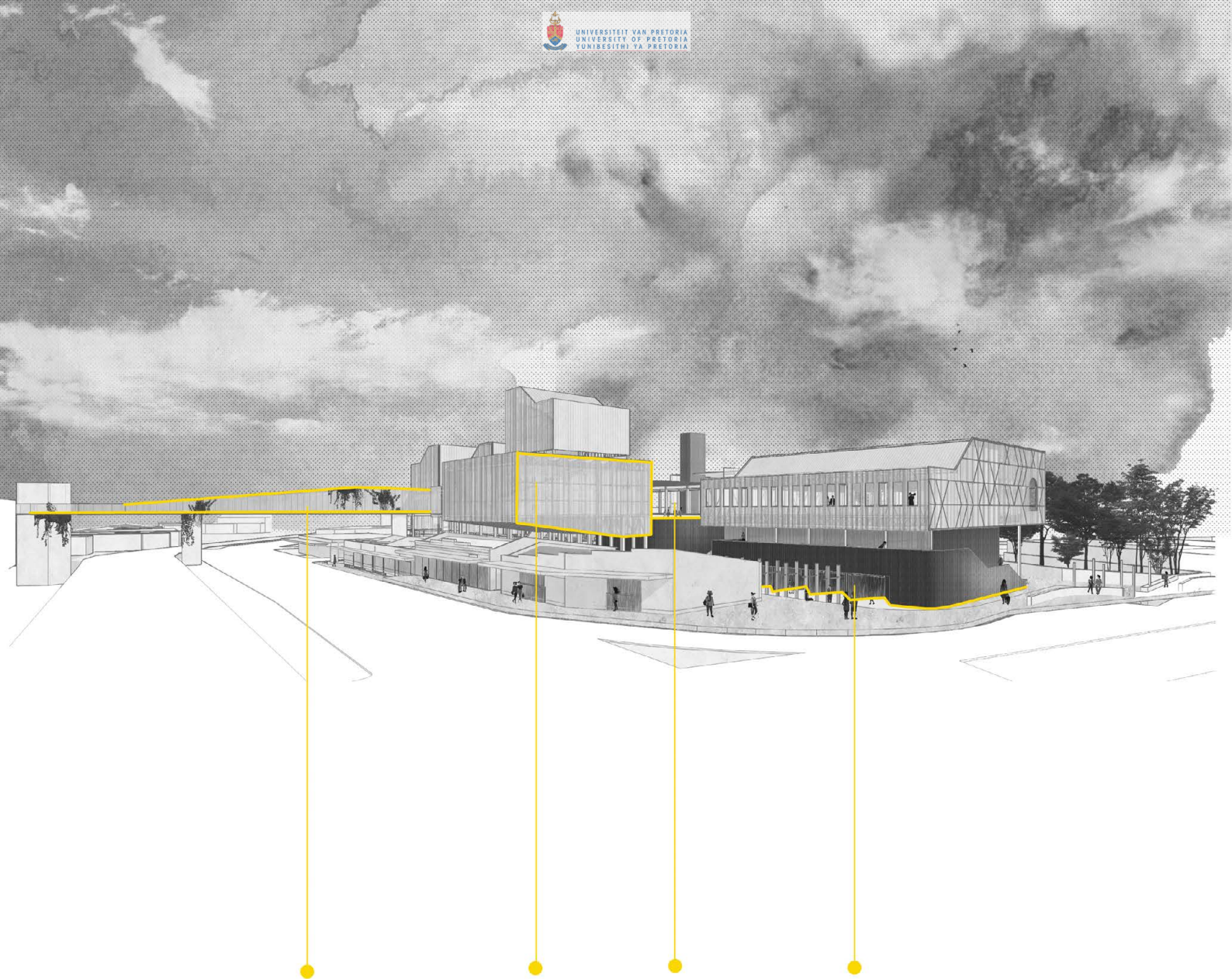


Single learning space defined by the 2:1 ratio with the opportunity for expanding the space to double class.

The expansion of the space is enabled by the removal of all internal columns and stack-away doors on dividers.

Full large scale space across all three learning bays.





The pedestrian bridge allows for the physical bridging into the Westbury community and allows for the opportunity of a second income generation for the school. Main Road, over which the bridge sits is also a primary artery and therefore is traffic ridden.

The cantilevered dance hall makes reference to the existing fabric by mimicking its sloped roof while expressing a new life for Westbury that begins to be shaped by an economically enabled, educated teen and adult workforce.

The in-between spaces, characterised by porosity, views across and between, and impromptu meeting spaces encourage learning as an everyday activity open for public access.

The prominent corner that expresses the materiality and formal language of the intervention is centered on the notion of framed views into and out of the building. This is further expressed in the in-between nature of the material translucence. This corner acts as a predominant entry point to the site.



- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

FIGURE 6.6
The building's structural and tectonic layering.
(Author, 2018)

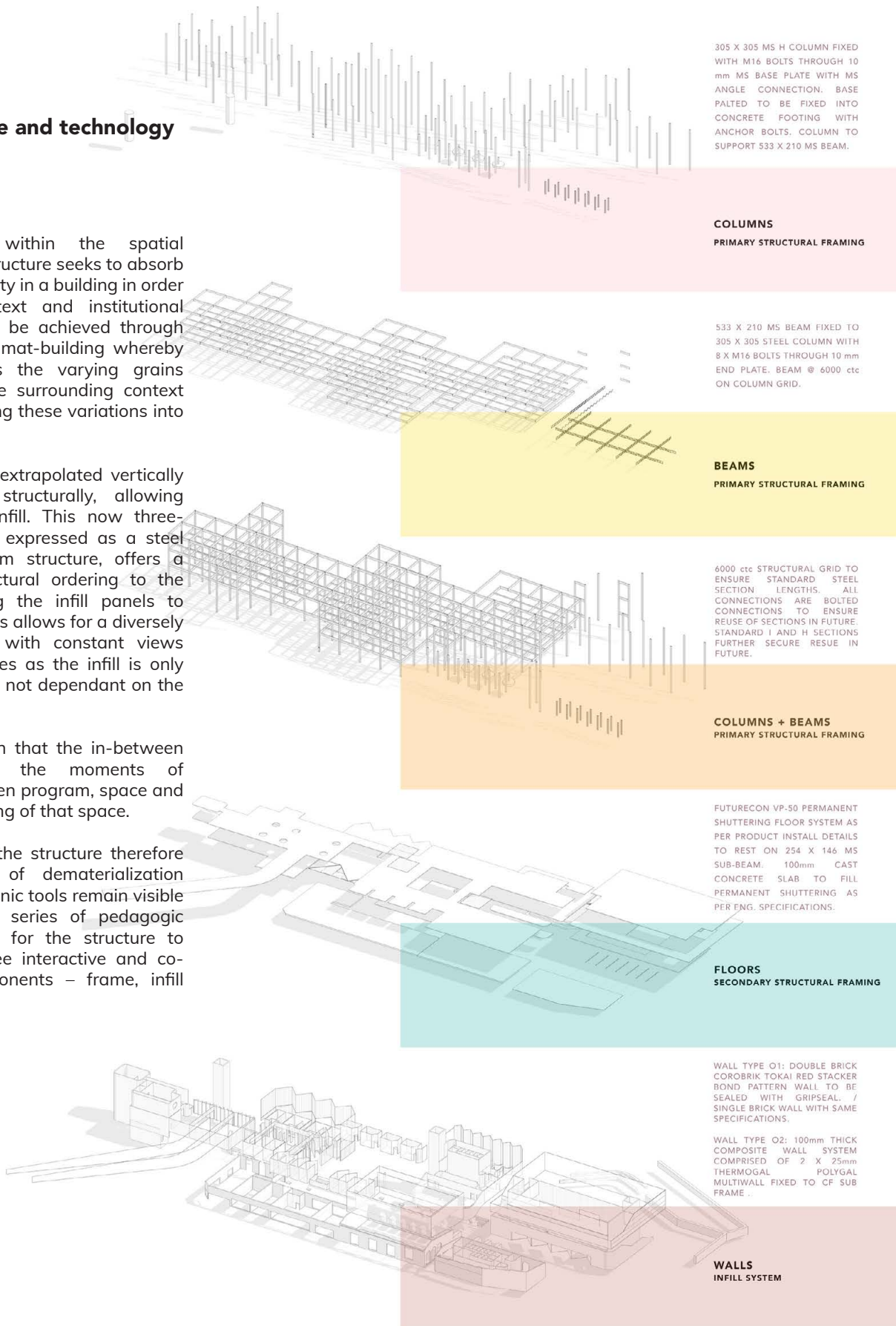
6.3 structure and technology

As evidenced within the spatial exploration the structure seeks to absorb the concept of a city in a building in order to mediate context and institutional scales. This is to be achieved through the strategies of mat-building whereby the site absorbs the varying grains and scales of the surrounding context through formalising these variations into a 6 by 6m grid.

This grid is then extrapolated vertically and expressed structurally, allowing for freedom of infill. This now three-dimensional grid, expressed as a steel column and beam structure, offers a spatial and structural ordering to the building, allowing the infill panels to float between. This allows for a diversely levelled building with constant views between all spaces as the infill is only supported by and not dependant on the framing.

It is in this notion that the in-between spaces become the moments of interaction between program, space and the physical making of that space.

The tectonics of the structure therefore explore a sort of dematerialization whereby the tectonic tools remain visible throughout as a series of pedagogic devices, allowing for the structure to be legible in three interactive and co-dependant components – frame, infill and service.



305 X 305 MS H COLUMN FIXED WITH M16 BOLTS THROUGH 10 mm MS BASE PLATE WITH MS ANGLE CONNECTION. BASE PALTED TO BE FIXED INTO CONCRETE FOOTING WITH ANCHOR BOLTS. COLUMN TO SUPPORT 533 X 210 MS BEAM.

COLUMNS
PRIMARY STRUCTURAL FRAMING

533 X 210 MS BEAM FIXED TO 305 X 305 STEEL COLUMN WITH 8 X M16 BOLTS THROUGH 10 mm END PLATE. BEAM @ 6000 c/c ON COLUMN GRID.

BEAMS
PRIMARY STRUCTURAL FRAMING

6000 c/c STRUCTURAL GRID TO ENSURE STANDARD STEEL SECTION LENGTHS. ALL CONNECTIONS ARE BOLTED CONNECTIONS TO ENSURE REUSE OF SECTIONS IN FUTURE. STANDARD I AND H SECTIONS FURTHER SECURE REUSE IN FUTURE.

COLUMNS + BEAMS
PRIMARY STRUCTURAL FRAMING

FUTURECON VP-50 PERMANENT SHUTTERING FLOOR SYSTEM AS PER PRODUCT INSTALL DETAILS TO REST ON 254 X 146 MS SUB-BEAM. 100mm CAST CONCRETE SLAB TO FILL PERMANENT SHUTTERING AS PER ENG. SPECIFICATIONS.

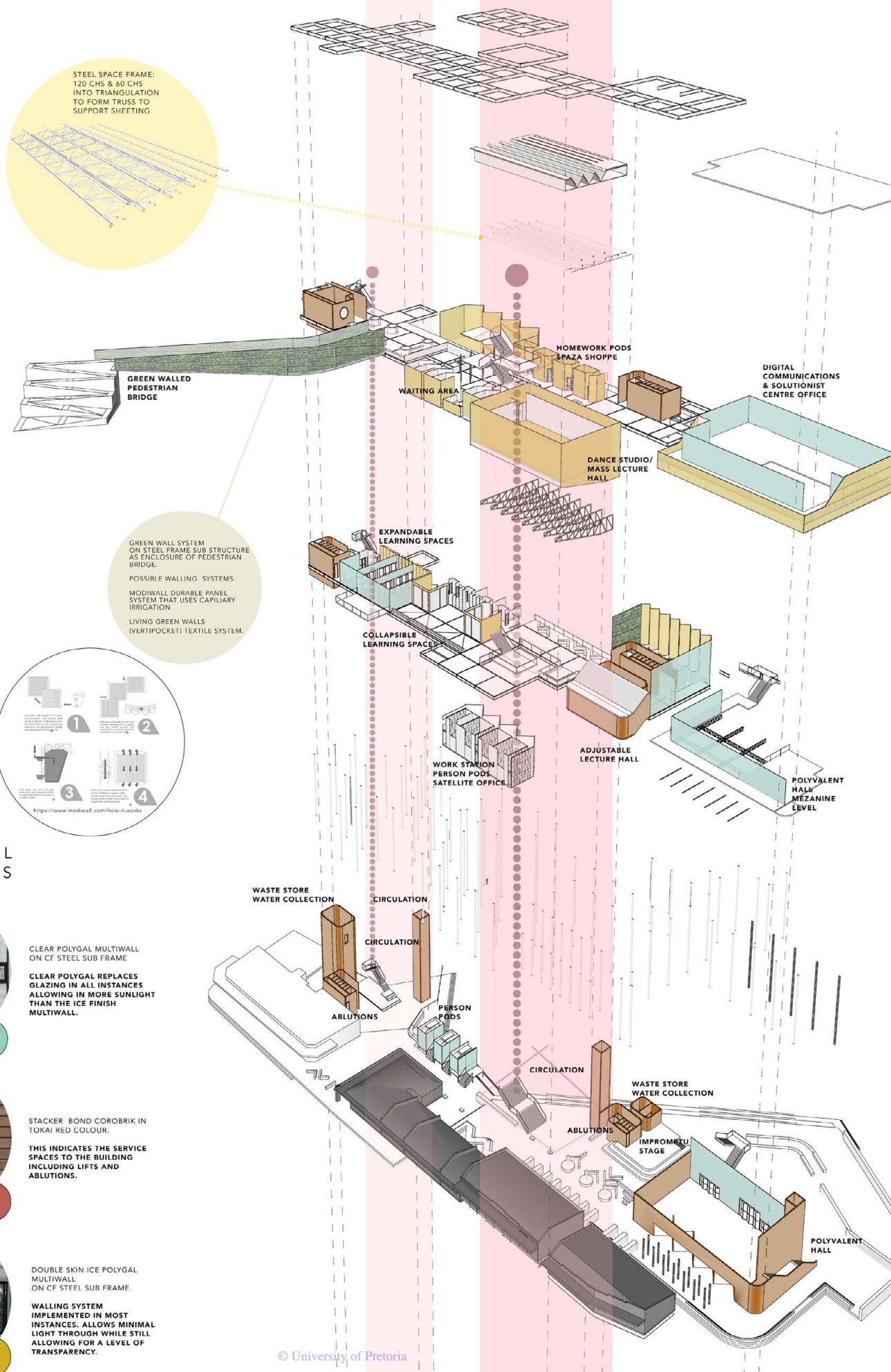
FLOORS
SECONDARY STRUCTURAL FRAMING

WALL TYPE O1: DOUBLE BRICK COROBRIK TOKAI RED STACKER BOND PATTERN WALL TO BE SEALED WITH GRIPSEAL. / SINGLE BRICK WALL WITH SAME SPECIFICATIONS.

WALL TYPE O2: 100mm THICK COMPOSITE WALL SYSTEM COMPRISED OF 2 X 25mm THERMOGAL POLYGLAL MULTIWALL FIXED TO CF SUB FRAME .

WALLS
INFILL SYSTEM

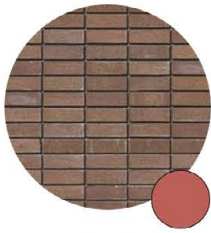
FIGURE 6.7
The building programs, components and materials.
(Author, 2018)



MATERIAL INDICATORS



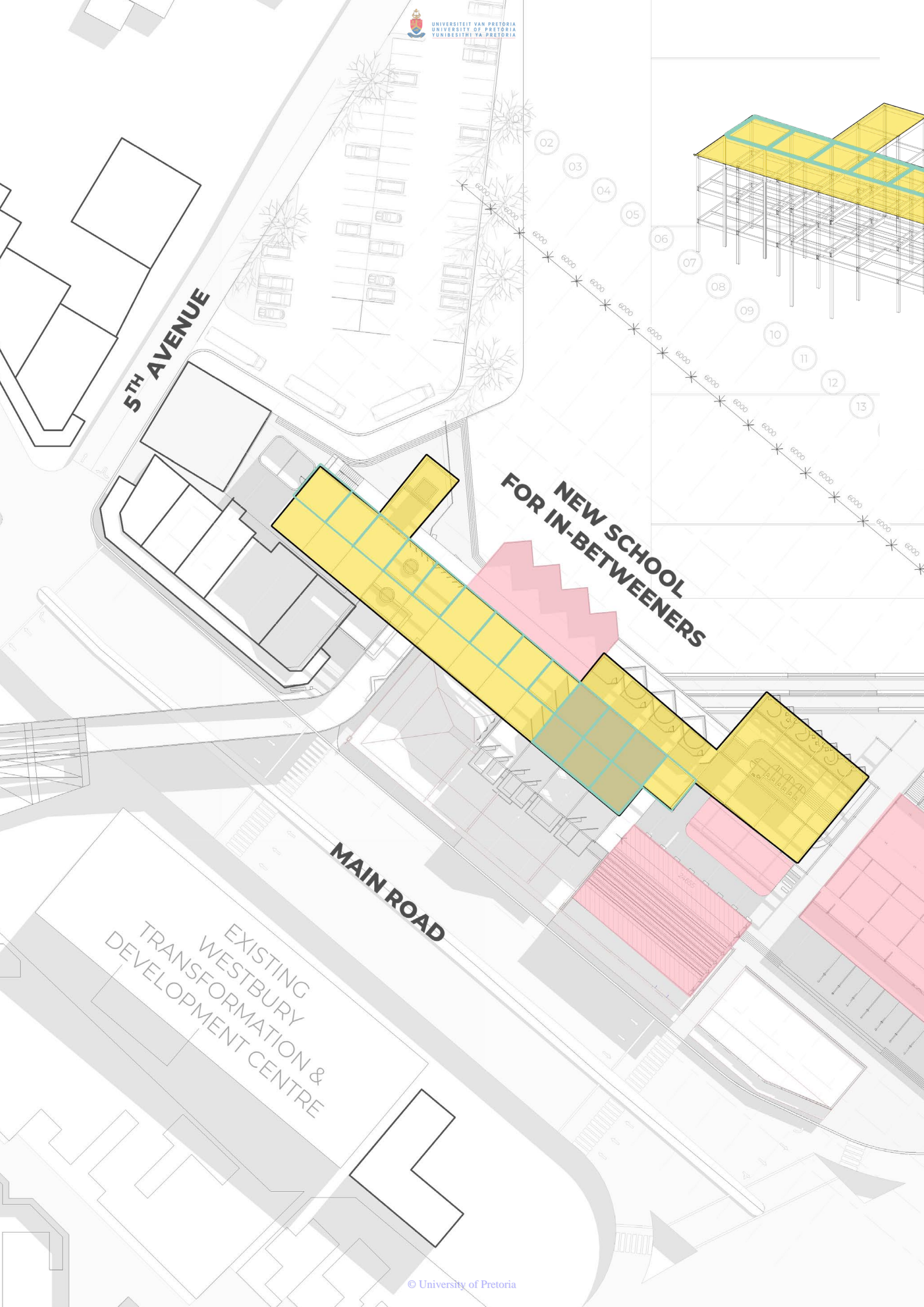
CLEAR POLY GAL MULTIWALL ON CF STEEL SUB FRAME
CLEAR POLY GAL REPLACES GLAZING IN ALL INSTANCES ALLOWING IN MORE SUNLIGHT THAN THE ICE FINISH MULTIWALL.



STACKER BOND COROBRIK IN TOKAI RED COLOUR.
THIS INDICATES THE SERVICE SPACES TO THE BUILDING INCLUDING LIFTS AND ABLUTIONS.



DOUBLE SKIN ICE POLY GAL MULTIWALL ON CF STEEL SUB FRAME.
WALLING SYSTEM IMPLEMENTED IN MOST INSTANCES. ALLOWS MINIMAL LIGHT THROUGH WHILE STILL ALLOWING FOR A LEVEL OF TRANSPARENCY.



5th AVENUE

**NEW SCHOOL
FOR IN-BETWEENERS**

MAIN ROAD

**EXISTING
WESTBURY
TRANSFORMATION &
DEVELOPMENT CENTRE**

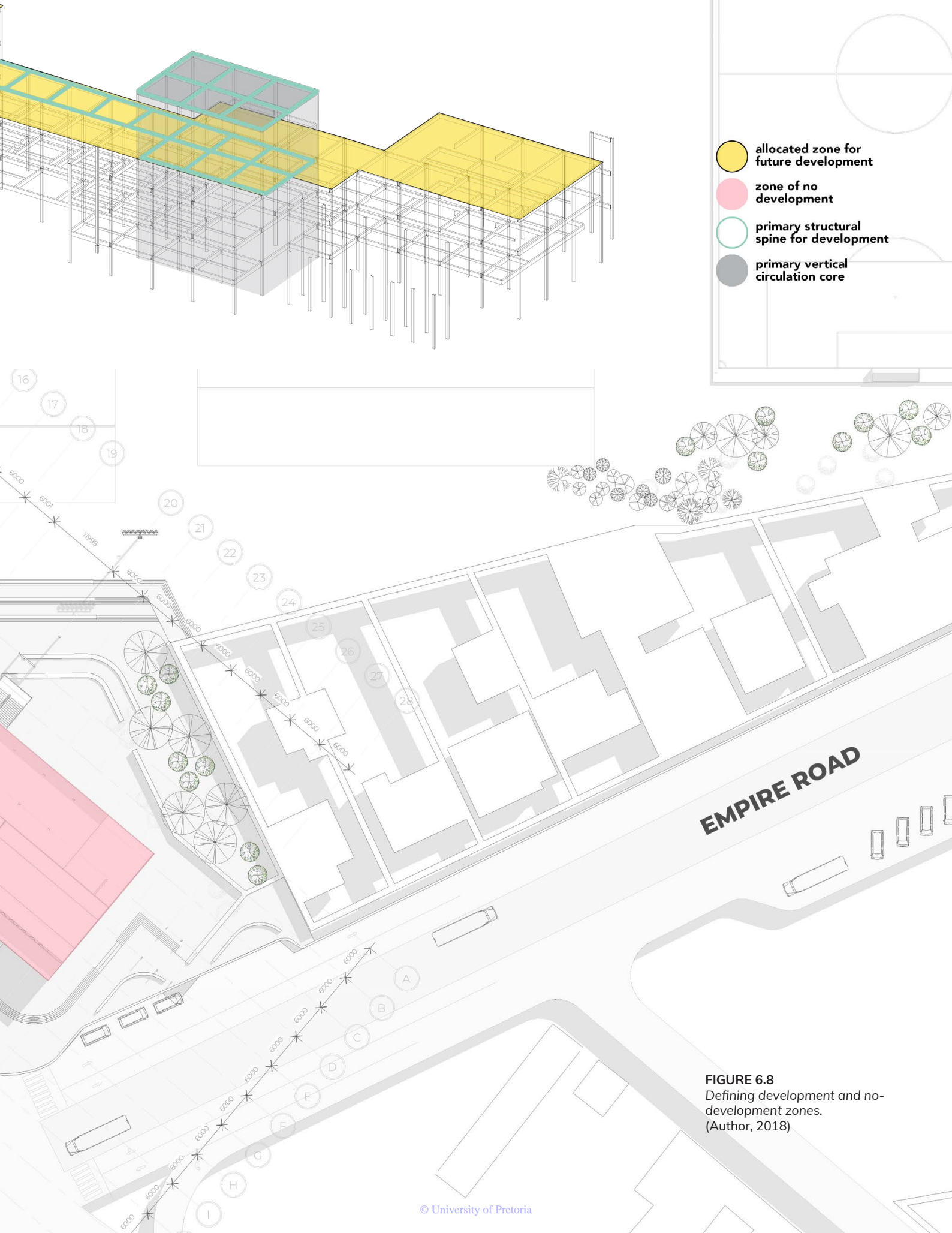
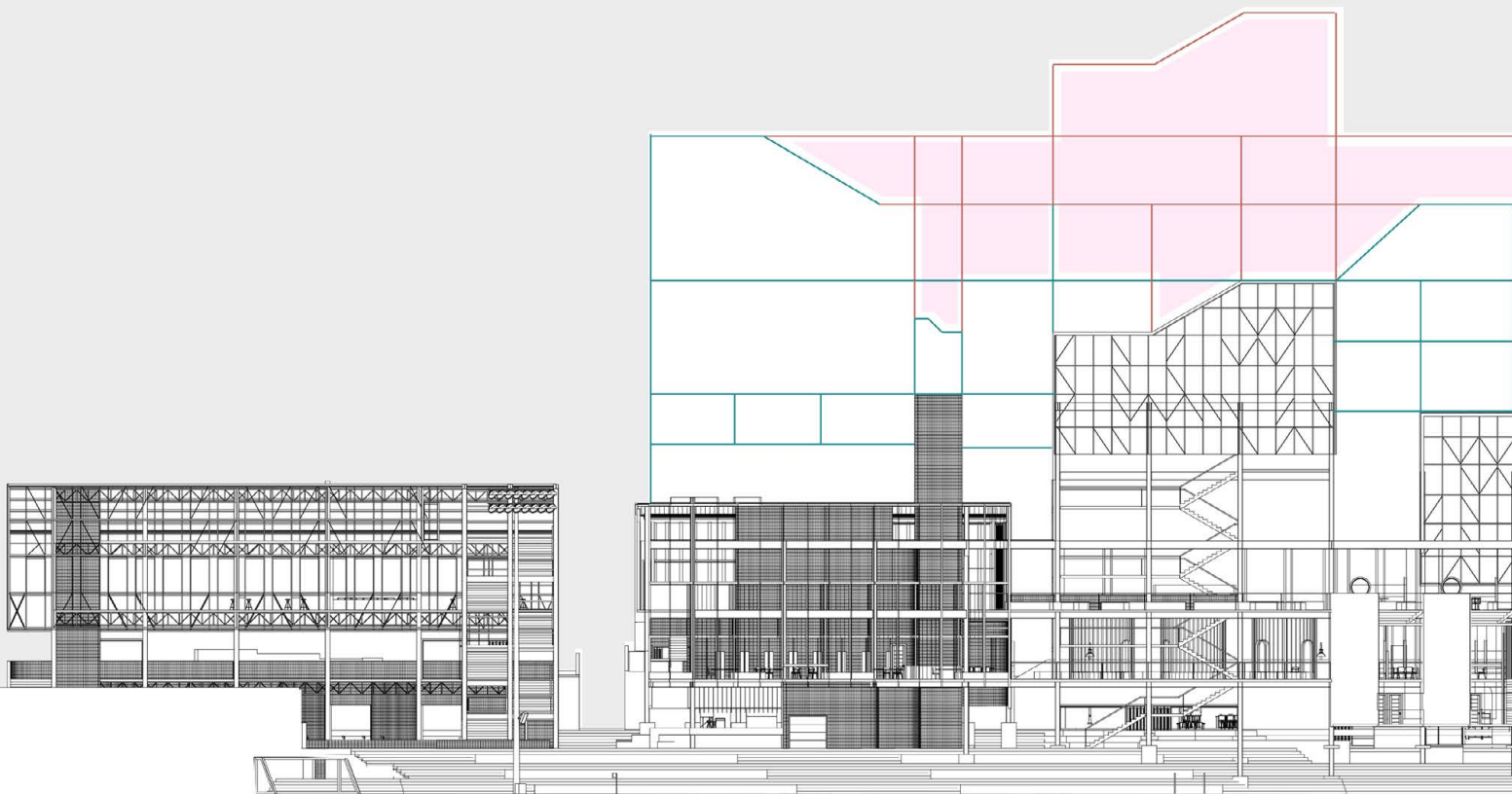


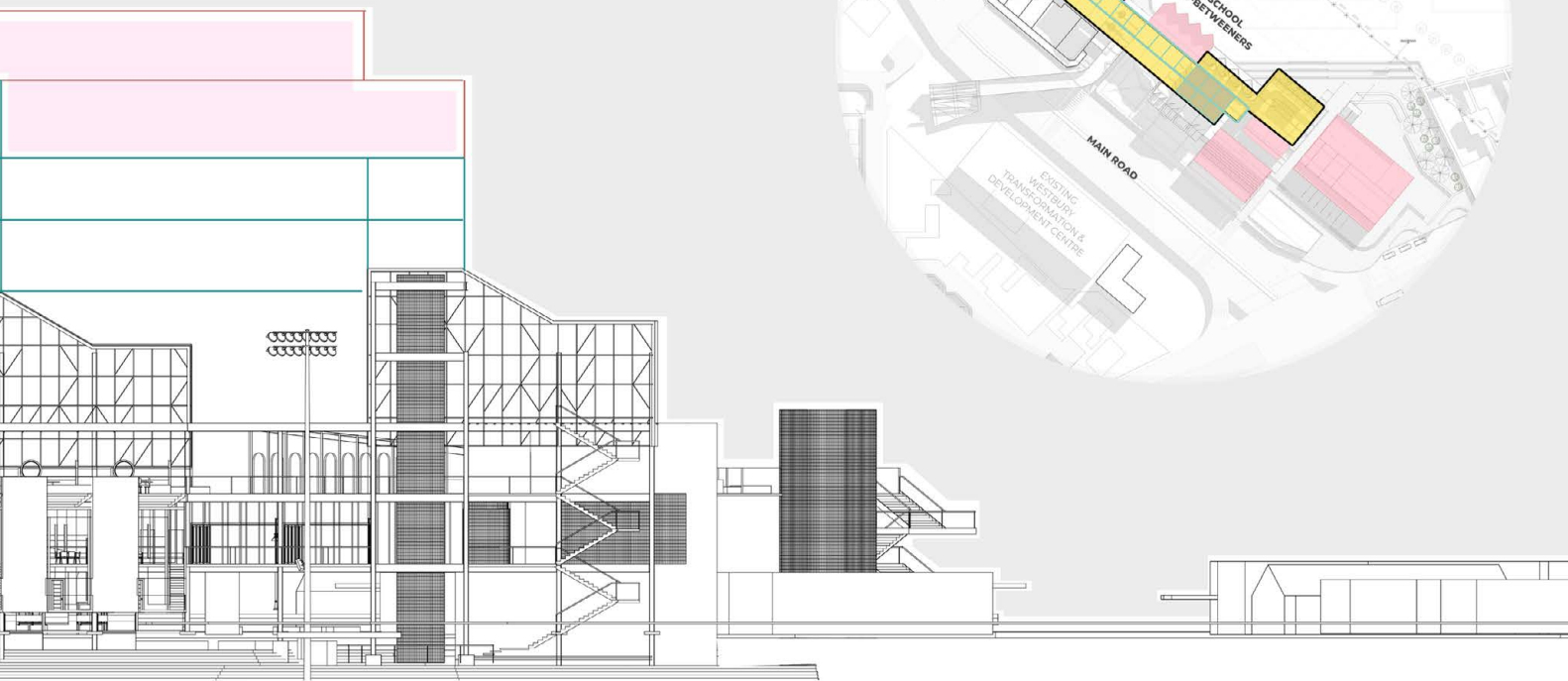
FIGURE 6.8
Defining development and no-development zones.
(Author, 2018)

FIGURE 6.8

Defining development and no-development zones. Exploring future development over time.
(Author, 2018)

VERTICAL FUTURE EXPANSION
BASED ON DEVELOPMENT
AND NO-DEVELOPMENT ZONES





- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

6.4 frame

The frame is limited by the site on its horizontal plane while remaining vertically unlimited with the intention of the building extending skyward over time. Owing to this, the frame also needs to provide for future structural loading in zones allocated for extension.

The frame is expressed as a steel I and H column and beam system with only bolted connections in order to ensure future reuse of universal steel sections. The 6m increment ensures the economic use of steel on site. The decision to use steel was further influenced by the location of NJR steel manufacturers and wholesalers, positioned one block away from the site, ensuring the use of both local materials and labour.

The H columns are of a 305x305 profile and are bolted to a 533x210 I beam at finished floor levels of 4550mm as to be in increments of brick masonry and stair risers. These columns and beams are connected at 6m centres with a 254x146 steel sub-beam at 3m centres in order to support the permanent shuttering cast concrete flooring system as well as to provide for lateral bracing without implementing cross bracing on the vertical planes.

The 4550mm floor level intervals further explore a flexibility in structure as the height allows for a mezzanine or interval level within each floor. This ensures the future fit-out of the building as it has been designed and structurally synthesized in order to allow for this.

In its lateral loading, the frame is to be braced in every fifth bay with a steel rod and connector plate.

The frame further has various iterations according to the spaces which it is to construct. The cantilevered dance/ lecture hall is constructed on a long span truss system influenced by the manner in which a space frame operates, while the

lightweight top to the polyvalent hall is supported on a combination structure of long span trusses and long span beams.

The use of these systems in both programs ensures a freeing of the floor plane in order to allow for a multiplicity in use where events may range from a small gathering to a crowd.

In all instances, the column and beam and the manner in which they meet and connect becomes the device of the tectonic exploration.

The frame is therefore the spine that binds the scheme and its spaces.

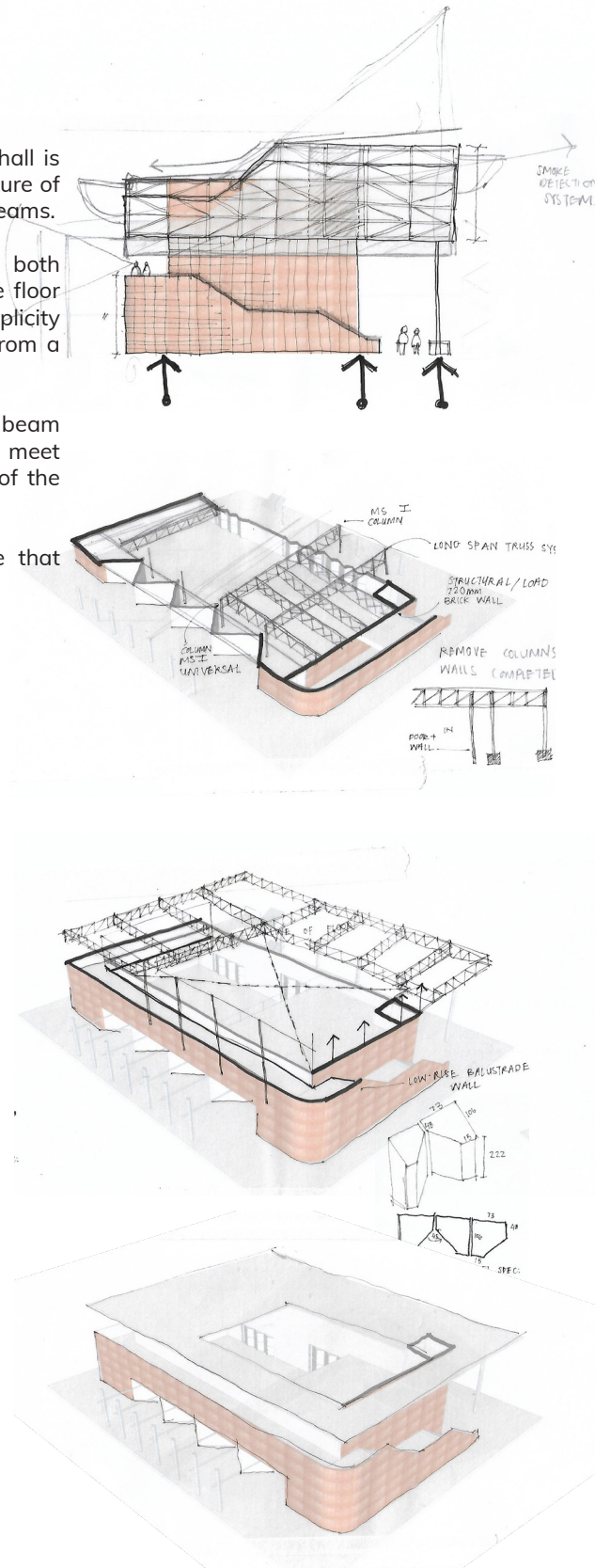


FIGURE 6.9
Exploring framing systems in the polyvalent hall.
(Author, 2018)

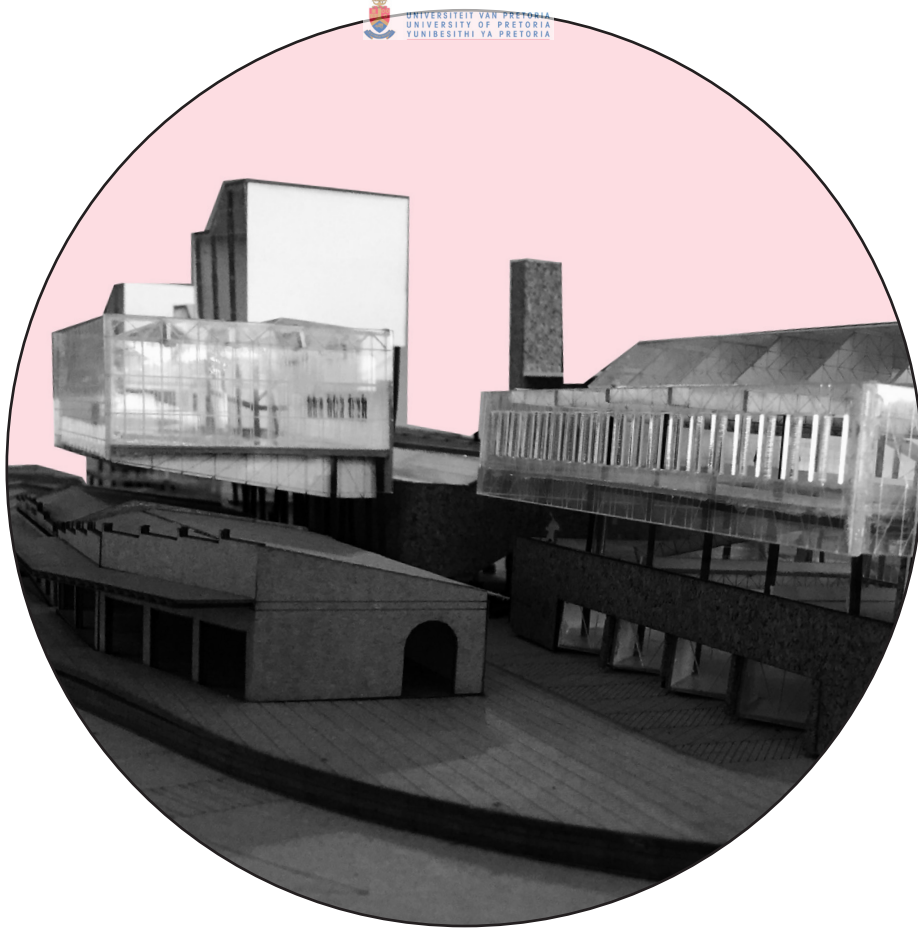
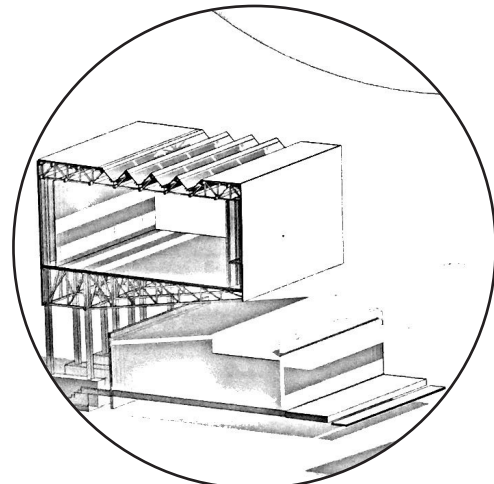
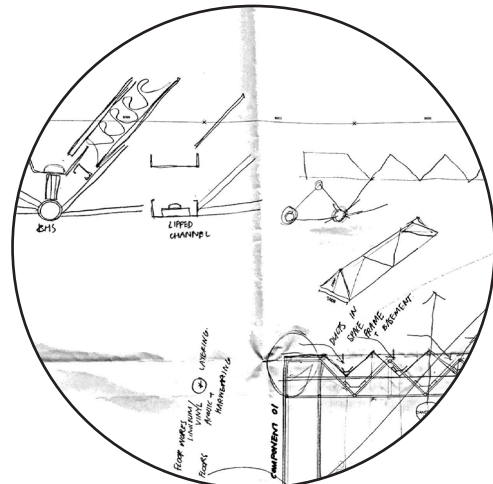
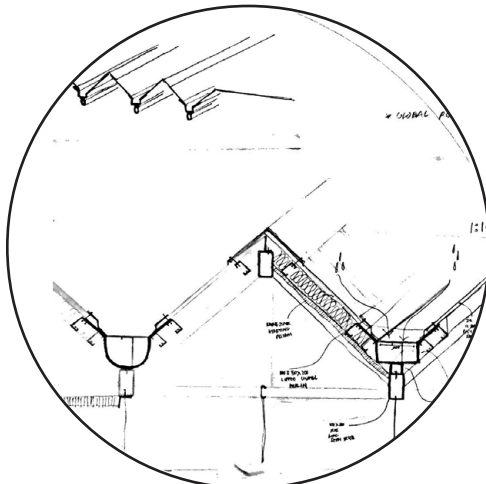
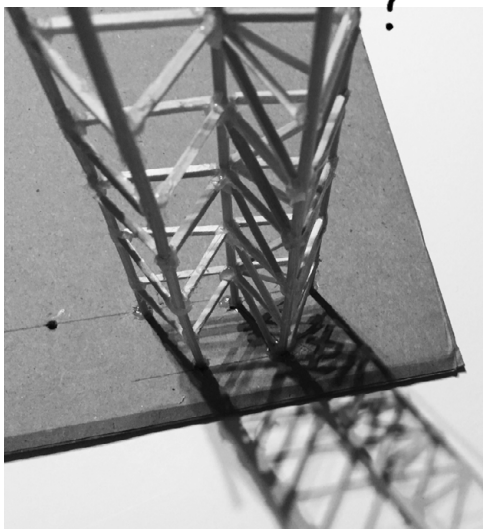
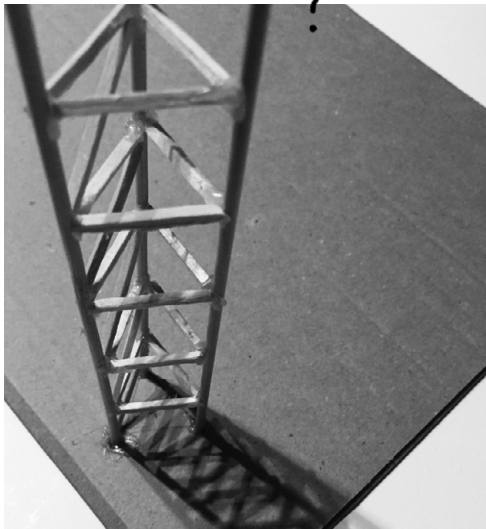
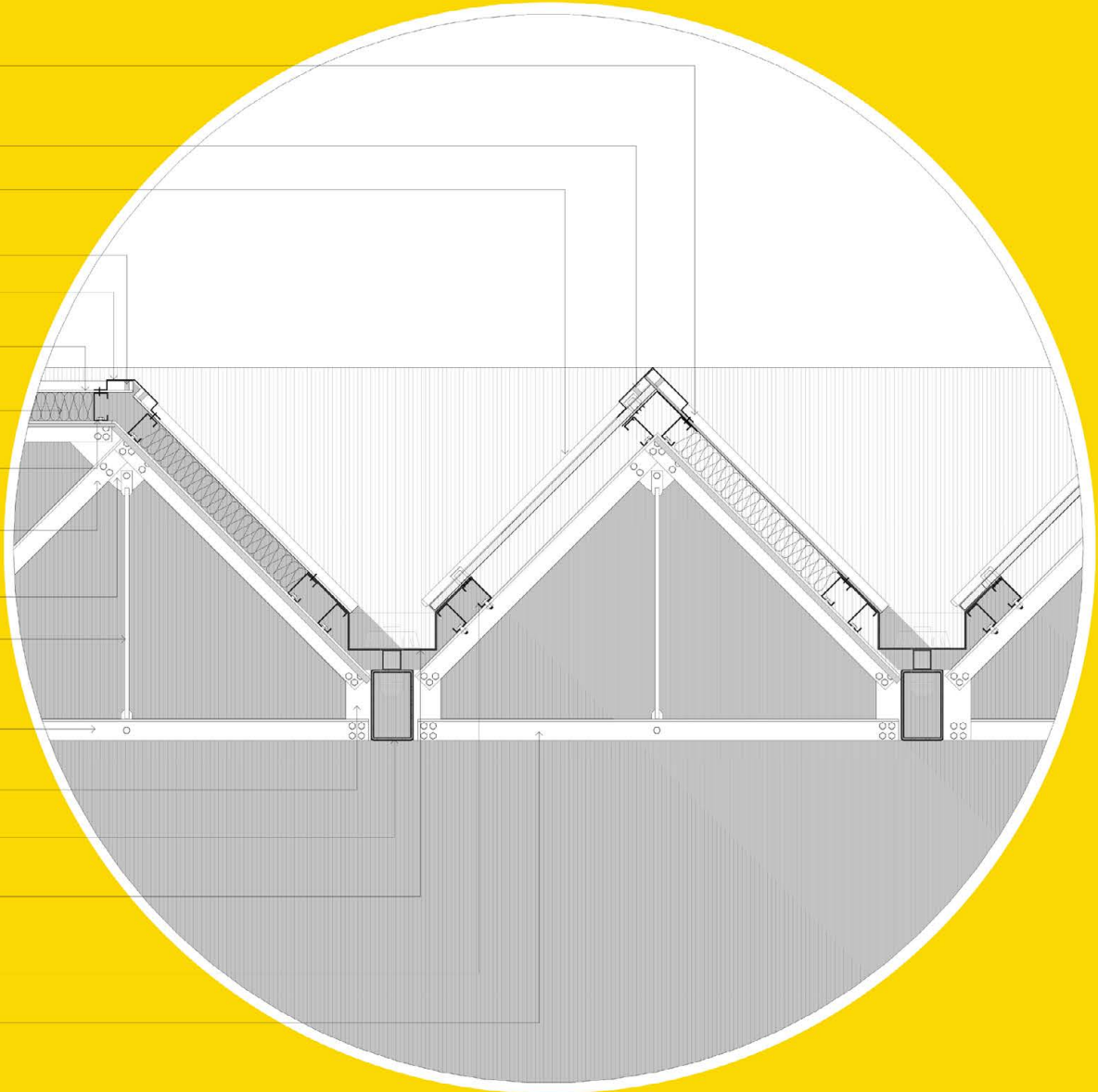


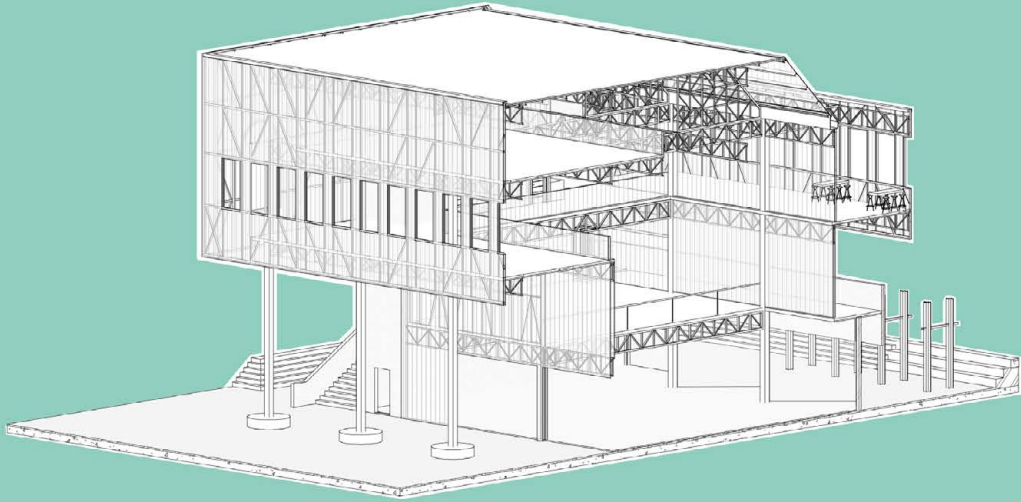
FIGURE 6.10
Exploring framing systems in the cantilever lecture / dance hall. The system is based on the structural premise of a space frame but is explored using long span trusses.
(Author, 2018)



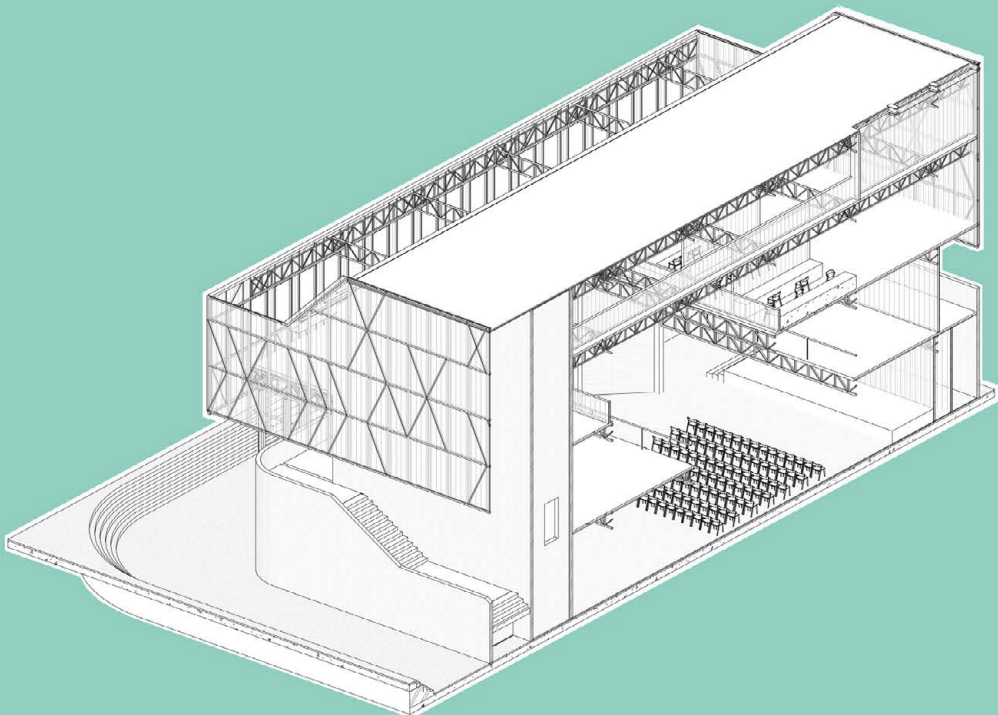
- White double-interlocking concealed-fix Klip-Tite steel roof sheeting fixed to 100 X 75 X 20 lipped channel purlins @1200 ctc, fixed to every purlin by means of specialised clips
- compressible foam spacer to conceal ridges of Multiwall
- 20mm Topgal Polygal Multiwall panel (ice finish) fixed to 100 x 50 x 20 lipped channel purlin with all standard necessary fixings and end caps
- compressible foam spacer to conceal ridges of Multiwall
- Dent still Colorbond flashing as part of polygal standard fixings to be fixed through sheeting to 100 X 75 X 20 lipped channel purlin
- White double-interlocking concealed-fix Klip-Tite steel roof sheeting fixed to 100 X 75 X 20 lipped channel purlins @ 1200 ctc, fixed to every purlin by means of specialised clips
- 100mm Isoform roof insulation as primary insulation to rest on Lambda board ceiling and truss cross bracing
- 100 X 75 X 20 lipped channel purlins @ 1200 ctc fixed to 75 X 50 MS Unequal angle with M12 bolts
- 75 X 50 MS Unequal angle fixed to gusset plate with 2 X M12 bolts. Gusset plate to be structural welded to top chords of truss
- 10mm MS gusset plate structural welded to main truss members
- 15mm MS Steel tension rod as truss web member to be bolted to gusset plate at top end with M12 bolt and to be sandwiched between and bolted through two back to back 75 X 50 MS Unequal angles
- 75 X 50 MS Unequal angle fixed to gusset plate with 2 X M12 bolts. Gusset plate to be structural welded to RHS beam
- 10mm MS gusset plate structural welded to 150 X 250 MS RHS beam
- 150 X 250 MS RHS beam to become column on vertical plane. RHS beam to act as RB frame to which everything connects.
- 6mm MS custom folded gutter to span full length of roof. Gutter to house Geberit Pluvia siphonage system. Downpipe to run in wall cavity and column as per detail to be stored in service basement
- 100 X 75 X 20 lipped channel purlins @ 1200 ctc fixed to 75 X 50 MS Unequal angle with M12 bolts
- Truss system to be at 1500 ctc and to have necessary cross bracing in all directions as per eng. spec.
- All steel is to be primed with Red Oxide primer and painted with enamel



1:10 DETAIL OF DANCE HALL ROOF ARTICULATION



POLYVALENT HALL CROSS SECTION



POLYVALENT HALL LONG SECTION

Composite floor slab of Bond-Dek
permanently form work. Top-down
900mm wide rib through reinforcement
sheets are formed from certified steel.
100mm concrete is cast on the top
formwork. Floor to be supported @
3000 c/c's

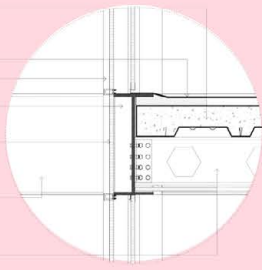
20mm Topogal Polygal Multispan panel (see
Formwork Details) GCR Sub-Beams with all
standard necessary fittings and end caps

75 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
to be structural welded to side of
channel

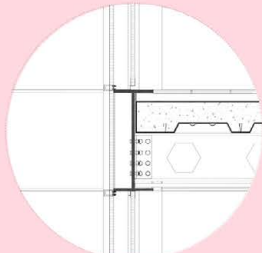
125 X 200 X 145 Beam fixed to 200 X 300 X 145 in
Columns with 75/50 X 145 Uncoated angle structural
welded to 200 X 75 X 145 Uncoated angle to be
be structural welded to channel and column side to
to be bolted to Column. Beams to be factory
made and assembled on site. Beams to be @ 3000
c/c's on column grid.

125 X 200 X 145 Beam fixed to 200 X 300 X 145 in
Columns with 75/50 X 145 Uncoated angle structural
welded to 200 X 75 X 145 Uncoated angle to be
be structural welded to channel and column side to
to be bolted to Column. Beams to be factory
made and assembled on site. Beams to be @ 3000
c/c's on column grid.

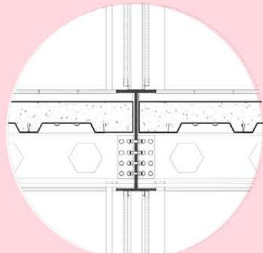
254 X 146 X 145 Cantilevered Sub-Beams to allow for
service installations. Sub-Beams to be @
3000 c/c's on column grid.



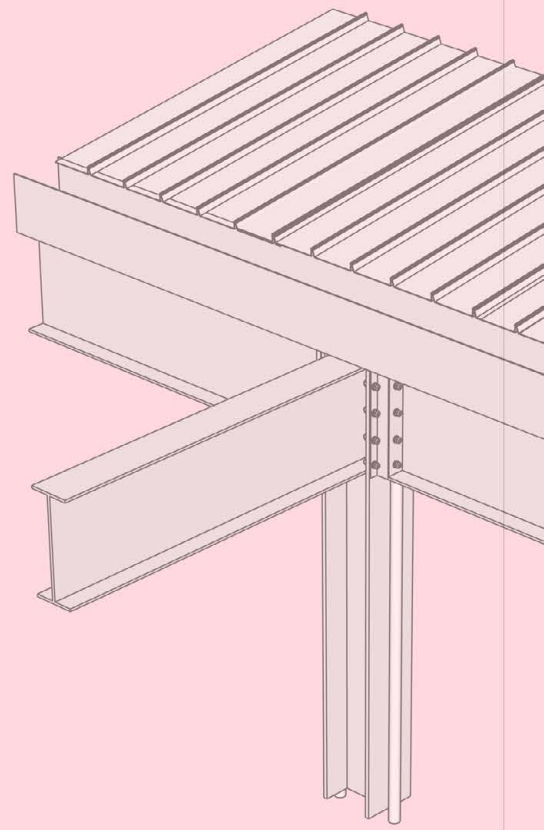
TYPICAL 1:10 LINOLEUM
FLOORING DETAIL



TYPICAL 1:10 CONTINUOUS
POLYGal END WALL DETAIL



TYPICAL 1:10 CENTRE WALL
POLYGal DETAIL



Composite floor slab of Bond-Dek
permanently form work. Top-down
900mm wide rib through reinforcement
sheets are formed from certified steel.
100mm concrete is cast on the top
formwork. Floor to be supported @
3000 c/c's

20mm concrete tiles laid in
herringbone pattern. See columns
formwork details for finishing crest

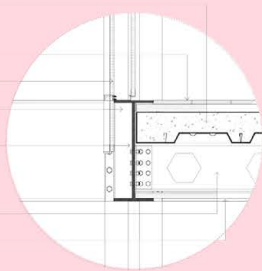
20mm Topogal Polygal Multispan panel (see
Formwork Details) GCR Sub-Beams with all
standard necessary fittings and end caps

75 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
to be structural welded to side of channel

125 X 200 X 145 Beam fixed to 200 X 300 X 145 in
Columns with 75/50 X 145 Uncoated angle structural
welded to 200 X 75 X 145 Uncoated angle to be
be structural welded to channel and column side to
to be bolted to Column. Beams to be factory
made and assembled on site. Beams to be @ 3000
c/c's on column grid.

254 X 146 X 145 Cantilevered Sub-Beams to allow
for service installations. Sub-Beams to be @
3000 c/c's on column grid.

Green plastic ceiling board for exterior
use to be fixed between Spines. Vertical
Top Rail profile



TYPICAL 1:10 POLYGal
END WALL DETAIL



125 X 200 X 145 Beam fixed to 200 X 300 X 145 in
Columns with 75/50 X 145 Uncoated angle
structural welded to 200 X 75 X 145 Uncoated
Uncoated angle to be structural welded to
channel and column side to be bolted to
Column. Beams to be factory made and
assembled on site. Beams to be @ 3000 c/c's
on column grid.

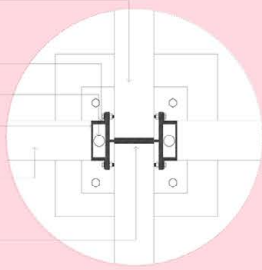
75 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
200 X 75 X 145 Uncoated angle to be used to
to be structural welded to side of channel

60 dia UPVC rainwater downpipes from Columns.
Provide upstands system. Water to be taken to
downpipes to be treated and stored in service
reservoir.

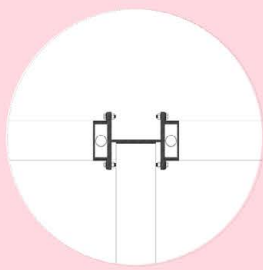
200 X 75 X 145 parallel flange channel to be
fixed to 200 X 300 X 145 column to receive
structural steel. Channel to be structural
welded to side of channel angle. Uncoated
angle to be bolted with bolts to 200 X
300 in Column.

125 X 200 X 145 Beam fixed to 200 X 300 X 145 in
Columns with 75/50 X 145 Uncoated angle
structural welded to 200 X 75 X 145 Uncoated
Uncoated angle to be structural welded to
channel and column side to be bolted to
Column. Beams to be factory made and
assembled on site. Beams to be @ 3000 c/c's
on column grid.

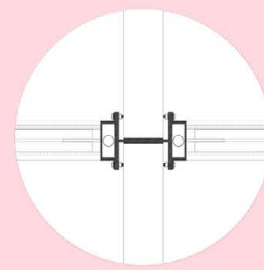
300 X 300 X 145 (1) Column as primary vertical framing
member. Columns to be primed with red oxide primer
and painted with enamel. Column to be fixed through
green base plate with 16 dia bolts. Base plate to be
fixed to footing with anchor bolts as per spec. Note.



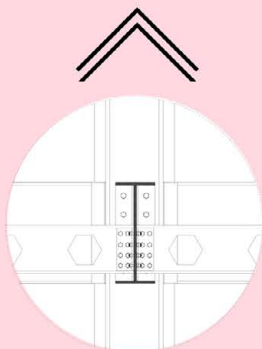
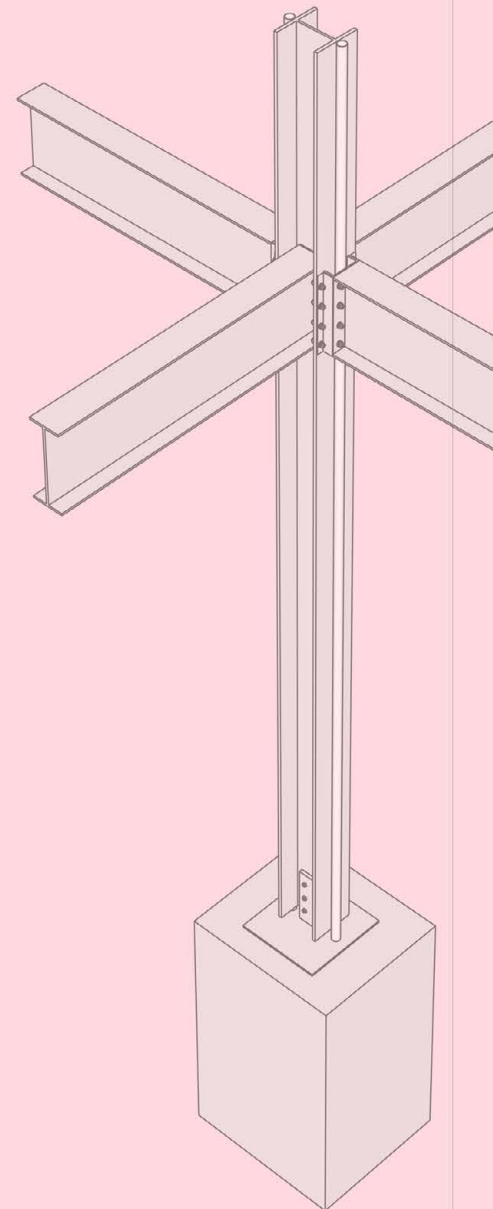
1:10 TYPICAL COLUMN DETAIL
(PLAN)



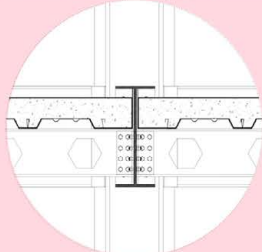
END COLUMN
TYPICAL DETAIL



TYPICAL STEEL
BRACING DETAIL



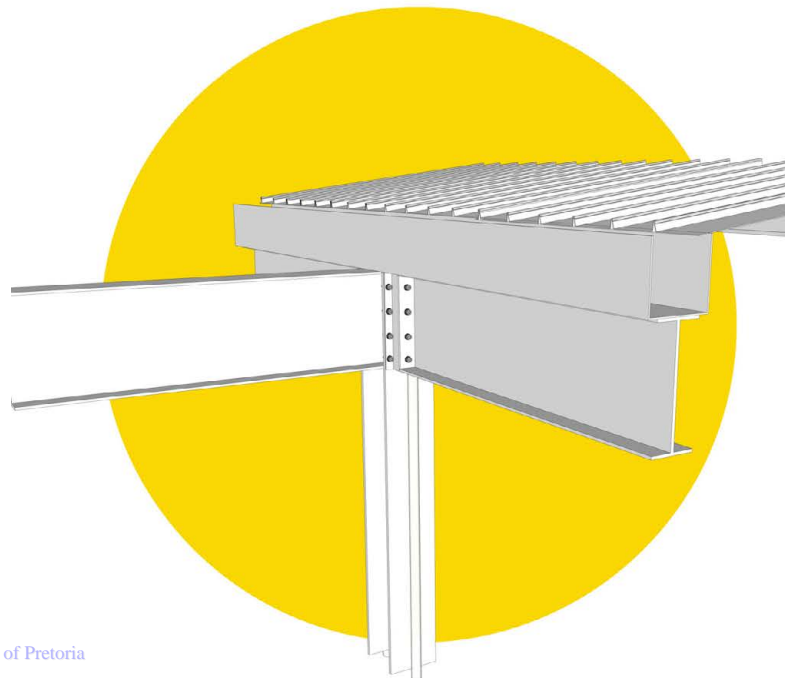
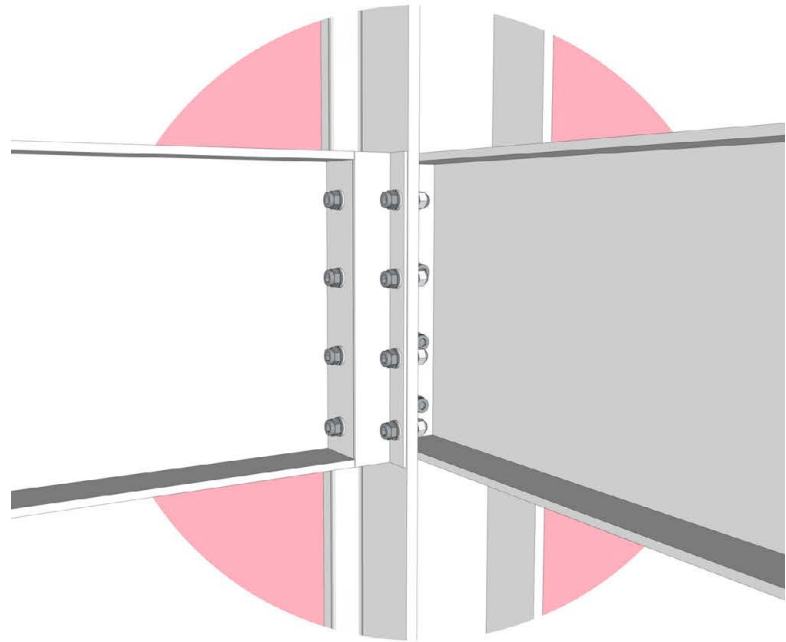
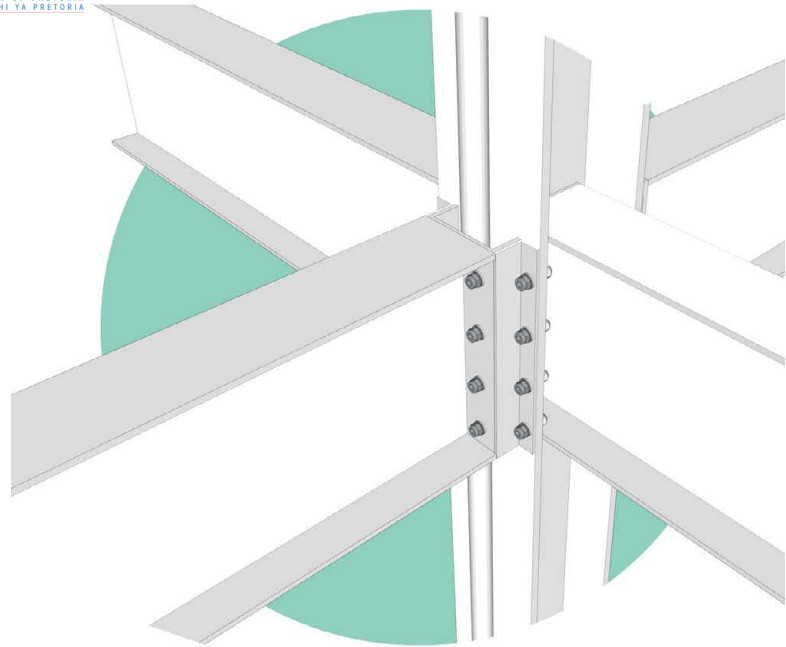
TYPICAL STEEL
FRAMING DETAIL (ELEVATION)



TYPICAL COMPOSITE
INFILL FLOOR DETAIL

FIGURE 6.11

Expressing the typical column and beam system implemented throughout the framing structure. Each detail is replicable depending on where in the structure it occurs. (Author, 2018)



- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

6.5 infill

The flooring system, although it adopts an infill nature as it does not physically connect to the structure, provides lateral bracing to the primary framing elements through the need for a sub-beam in order to support the floor. The Futurecon VP-50 permanent shuttering floor system facilitates a floor slab thickness of only 100mm above the void of the shuttering. This warrants far less in situ concrete to be used, therefore ensuring less loading on the structure overall.

The vertical/wall infill panels operate on the same system whereby each panel has its own structural integrity owing to its sub-framing elements.

The infill to the frame seeks not only to enclose space but define the exterior space too — that which remains unbuilt. The walls therefore serve as functional markers whereby brick indicates service spaces and spaces of introduction to the site while the composite multiwall system communicates the nature of the learning spaces. Furthermore, the use of brick as feature elements throughout makes reference to the domesticity and materiality of the Westbury suburb.

The composite walling system is a 3 layered component consisting of a double skin of 20mm Thermogal Polygal (UV protected polycarbonate) multiwall fixed to either side of a CF light steel framing system. The multiwall panels come in modular sheets with integral fixings, connections and end caps and are available in 3000X1200mm panels which fit within the grid module. This material possesses excellent acoustic properties and allows for transparency in the walling system, physically expressing and pushing the notion of the in-between.

The Polygal panels are available in Johannesburg and owing to their material make-up — plastic — are integrally water resistant and possess a high impact resistant and have excellent fire

resistance. In addition, they are reusable owing to the types of connections which are similar to that of clip-lock or tongue and groove and no waste is produced in the production of the panels. Above being reusable, the panels are also completely recyclable.

The thermal properties of this material increase with an increase in thickness owing to the number of cells per panel. The UV resistance is efficient enough to be used as a walling panel, especially when used as a composite make up (a clear Polygal panel is between 1,3 and 3,9 W/m² depending on its thickness) and the panels possess efficient U-values.

A single skin of 20mm Topgal polygal multiwall has a 0,666 R-value. This thus results in the material having a 1.50 U-value. To contextualise these values, a standard stock brick has an R-value of 0.14 with a 7.14 U-value.

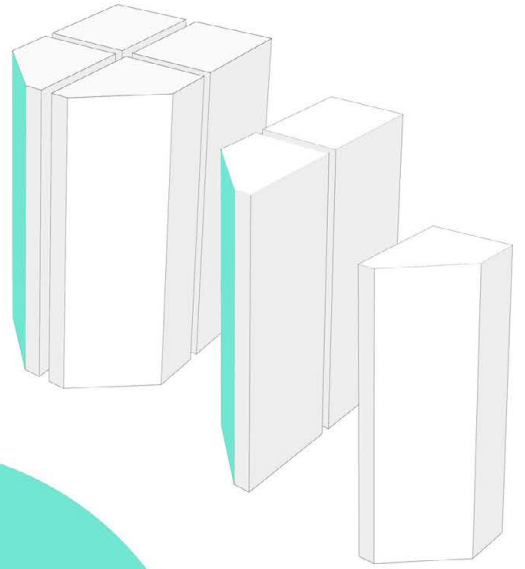
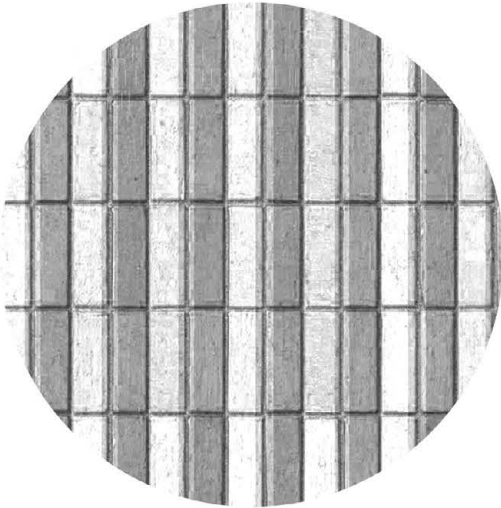
The R-value gives evidence of the material's resistance (the higher it is the better the performance) to heat while the U-value explores the amount of heat transmitted through a material to the inside space (the less this value is the less heat is transmitted)

The third implemented walling type in the structure is a secondary steel frame which attaches itself to the primary frame in order to hold a green walling system. This system has integral drip irrigation that works on capillary action. This wall is intended, on the interior of the bridge where it is accessible, to house panels of edible vegetation. The exterior, road facing side to the system provides screening and a protective enclosure to the pedestrian bridge. The green wall system is therefore double sided and attaches itself to either side of the secondary steel frame.

FIGURE 6.14
Understanding the infill systems and the spaces that they define.
(Author, 2018)

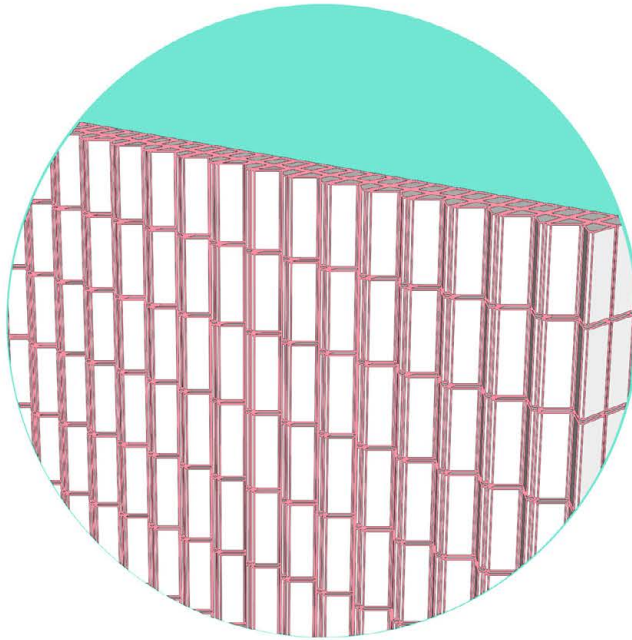
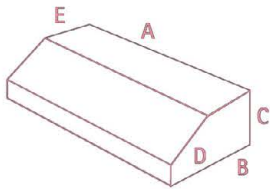






COROBRIK SPECIAL
BRICK (SILL BRICK) -
PLINTH STRETCHER
SOLID

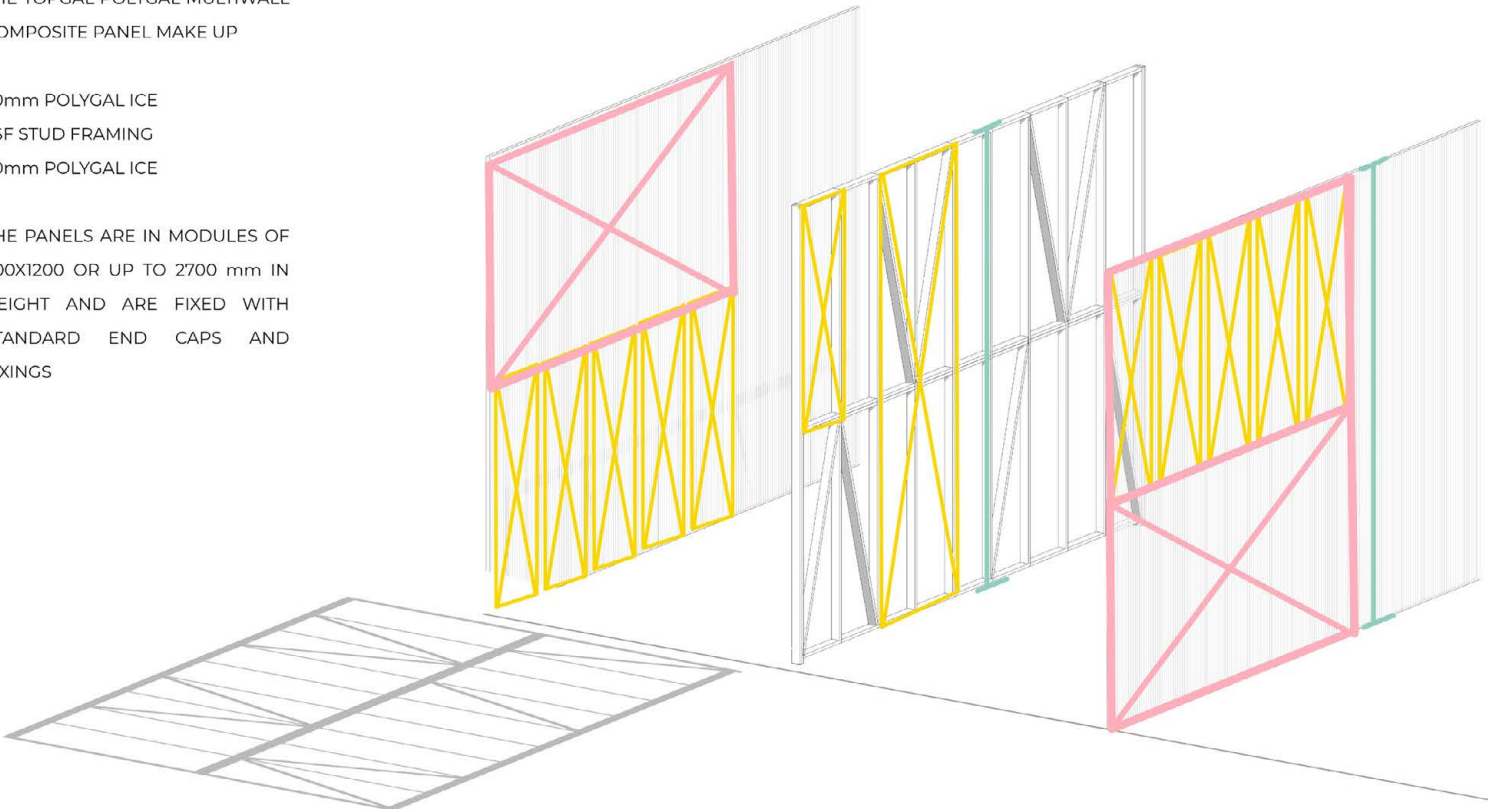
- A 222mm
- B 106mm
- C 73mm
- D 15mm
- E 48mm



THE TOPGAL POLYGAL MULTIWALL
COMPOSITE PANEL MAKE UP

- 20mm POLYGAL ICE
- LSF STUD FRAMING
- 20mm POLYGAL ICE

THE PANELS ARE IN MODULES OF
600X1200 OR UP TO 2700 mm IN
HEIGHT AND ARE FIXED WITH
STANDARD END CAPS AND
FIXINGS



- 6.1 flexibility and free space
- 6.2 exploring flexibility
- 6.3 structure and technology
- 6.4 frame
- 6.5 infill
- 6.6 service

FIGURE 6.15
The flow and organization
of services within the
intervention.
(Author, 2018)

6.6 services

Services within the building refer to all serviced spaces. These spaces are allocated by the use of brick and are free standing from the framing structure. Walls are removed from the lines of the grid in order to avoid the different expansion times between brick and steel. This also further explores the advantageous nature of a framing system where walls have no structural obligations.

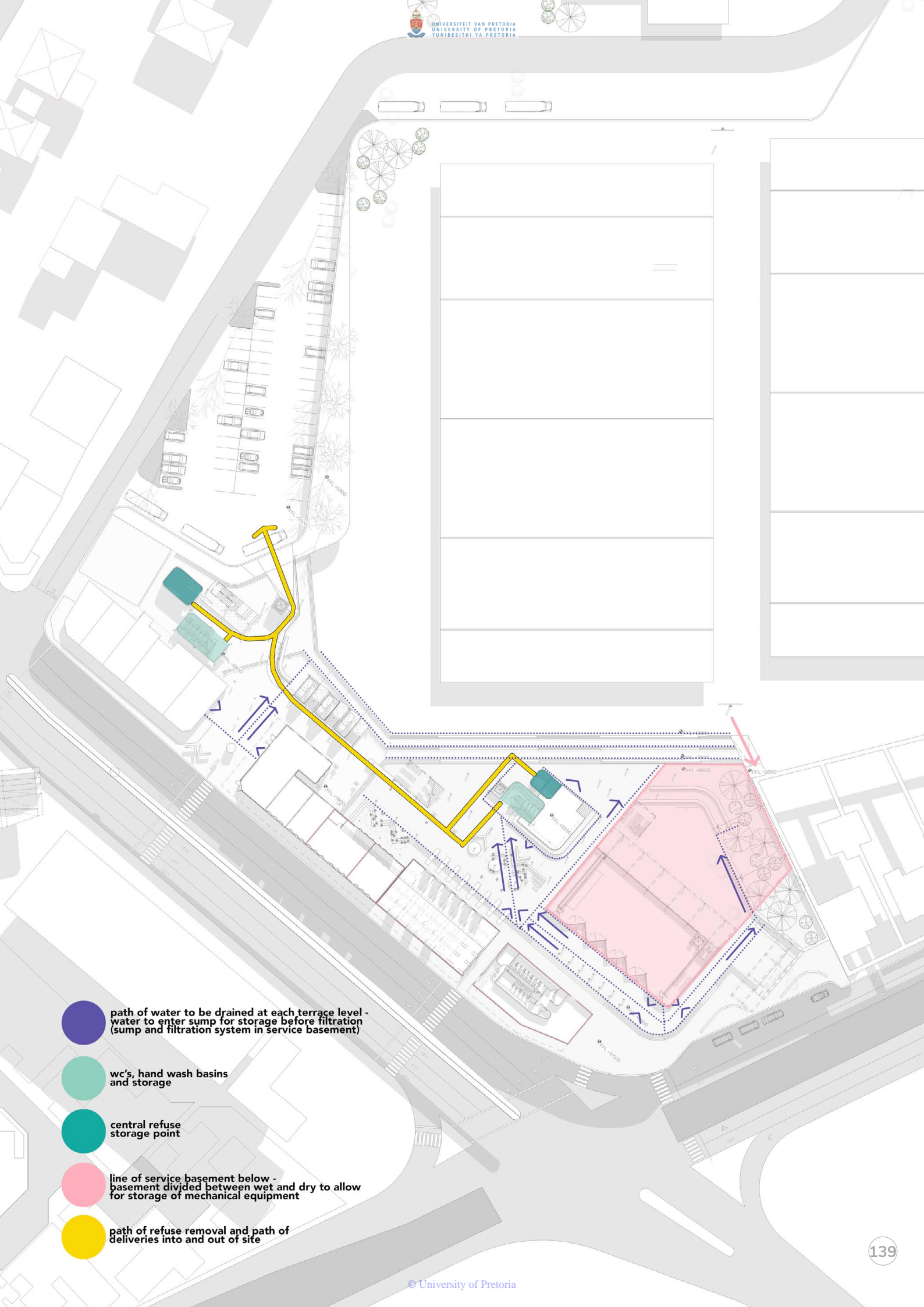
The serviced spaces occur in two particular points on the site within close proximity to the vertical circulation cores. Each area contains a duct for mechanical ventilation into the ablution facilities and storage space for water tanks as well as a separate one for refuse.






The collection and reuse of water becomes important to implement. It is intended to irrigate the green wall that spans both the pedestrian bridge and part of the northern façade on the building's western side.

The rain water will primarily be collected as surface run off on the ground floor through the use of permeable pavers and off the respective roof surfaces that are exposed to rain. This water will be reticulated via gutters, downpipes, and pipes in ceiling voids to a central point where it will enter a first flush system. This water will not be used as potable water and therefore its only further filtration will be through a simple irrigation y-filter in order to achieve the desired 100 microns of sediment for drip irrigation (Rainharvest, 2013).

Water that remains unused within the irrigation system may be used for any other irrigation on the site. Further reticulation of the water and waste water within the building occurs in ceiling voids and is taken to an existing municipal connection.

Electrical and mechanical reticulation is constructed in the same manner as a drywall system where conduits are first laid and then points of access established. Beneath the polyvalent hall there exists an accessible basement, purely for mechanical use, in which all necessary mechanical equipment (HVAC, generators, electrical equipment) will be housed.



-  path of water to be drained at each terrace level - water to enter sump for storage before filtration (sump and filtration system in service basement)
-  wc's, hand wash basins and storage
-  central refuse storage point
-  line of service basement below - basement divided between wet and dry to allow for storage of mechanical equipment
-  path of refuse removal and path of deliveries into and out of site

- 7.1 concluding the exploration
- 7.2 response to questions posed
- 7.3 design response
- 7.4 end note

F I N A L E // O U T L I N E

The closing chapter to the document outlines the product as being a map of innovation in response to the problem of designing a new architectural educational typology.

This portion highlights the points of differentiation from existing typology norms and explores future potentials that have yet to be explored in this same field.



07

- FINALE -

- 7.1 concluding the exploration
- 7.2 response to questions posed
- 7.3 design response
- 7.4 end note

7.1 concluding the exploration

This dissertation, constituted from a juncture within our educational landscape, one that has particularly come to light under the banner of #FeesMustFall, postulates the role of an educational facility and its resultant typology as being a product of community through addressing a particular community's challenges. In doing this, it seeks to explore education as a tool for changing the landscape of a community that remains scarred by an unjust production of space, without the ability to make place.

This is achieved through implementing a program that is both didactic and economic thus enabling the architecture — the facilitator of the program — to become a vehicle into a different sphere of life for the people of Westbury. Architecture therefore exists as the physical binary of the program within its context through addressing a defined user group.

Through utilising the existing institutional typology as a basis for critique, the exploration of this 'School for In-betweeners' sees education as a public asset which contributes to the production of a socially conscious

learning environment. It is within this learning environment that the context and surrounding community is absorbed and considered as a means to achieve an 'in-between' to context and institution.

The architecture, through adopting mat-building principles is therefore an armature of change. It enables program and public space through addressing existing programmatic and contextual 'gaps', in the search of infilling these spaces.

Therefore, this exploration seeks alternative methods of education and community integration through rethinking the architectural educational typology within the Westbury context.

This architectural typology embodies the principles of: polyvalence, future expansion, flexibility and in-between space.

7.2 response to questions posed

What is the appropriate context for a new campus typology that mediates context and institution through the economy and existing networks of exchange?

The answer to this research question remains inconclusive. However, for the purpose of this dissertation the context of Westbury was addressed as it was identified, through extensive mapping, as being a space defined by a scarred history and present which have resulted in various community challenges and 'gaps'.

This is however characteristic of a multitude of contexts within South Africa. Therefore, the appropriate context is everywhere that there are people in need of infrastructure that is both provisional and qualitative.

How can architecture facilitate a new educational typology within a previously and currently disadvantaged neighbourhood?

Architecture assumes the role of enabler in a context such as Westbury — a suburb characteristic of being both currently and previously disadvantaged.

Through implementing infrastructure that directly addresses a pertinent potential within that neighbourhood, the community's association with provision is altered as a project becomes socially charged.

The nature of social infrastructure can therefore only be sensitive to the production of space as it hinged on making space for people.

Therefore, the way in which architecture facilitates a new typology is through understanding that this typology needs to create space for people.

How can educational infrastructure be both provisional and autonomous in its production of space for learning?

The point at which autonomy in an educational typology is reached is when infrastructure considers the humans' use of space.

This is further achieved through the understanding that these facilities should also be spaces that in themselves that inspire learning.

This is the device with which educational infrastructure may move past mere provision into a qualitative realm in which the space and place-making of the learning environment inspire creativity and innovation.

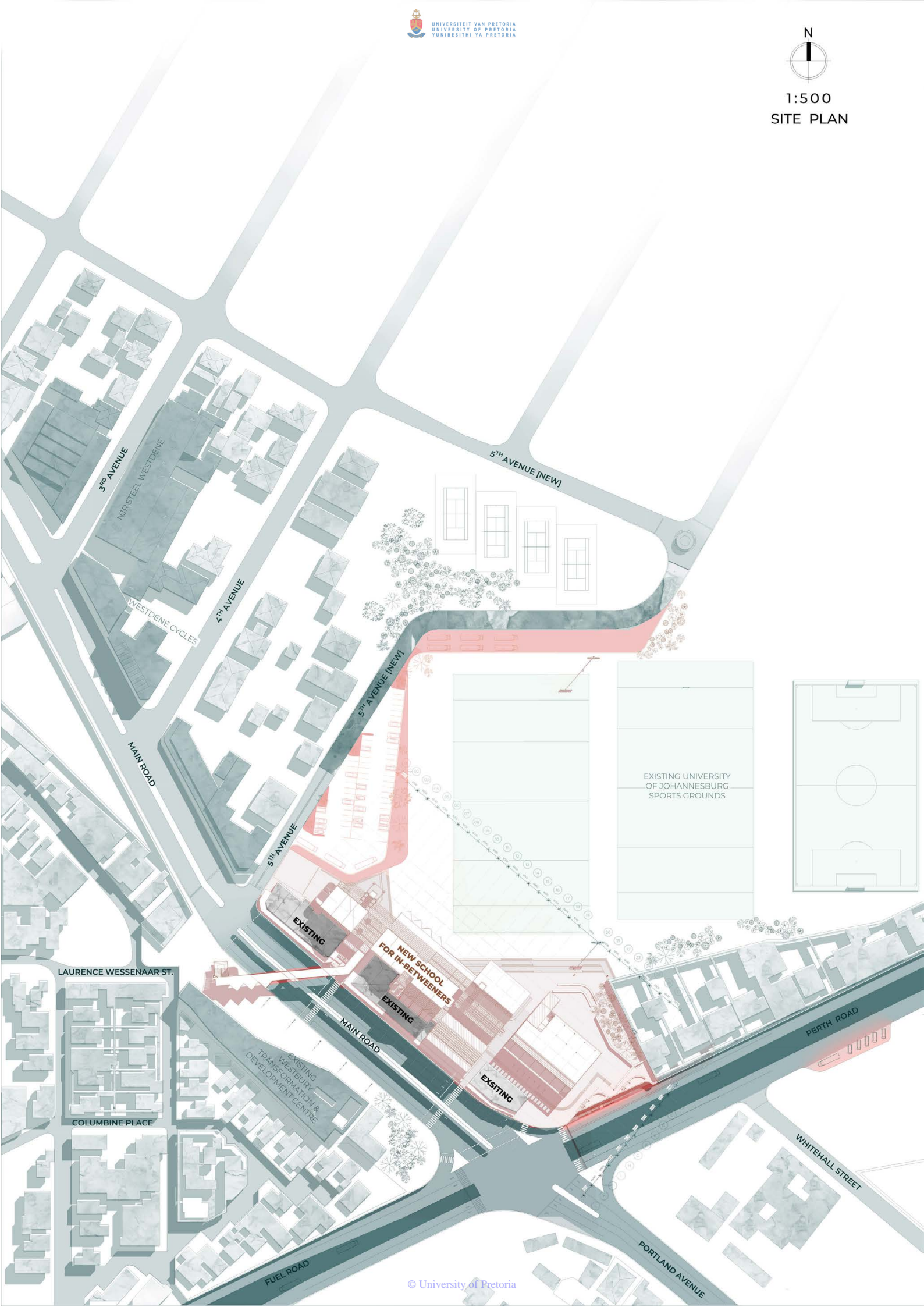
SOUTH ELEVATION
7.1 concluding the exploration
7.2 response to questions posed
7.3 design response + final presentation
7.4 end note

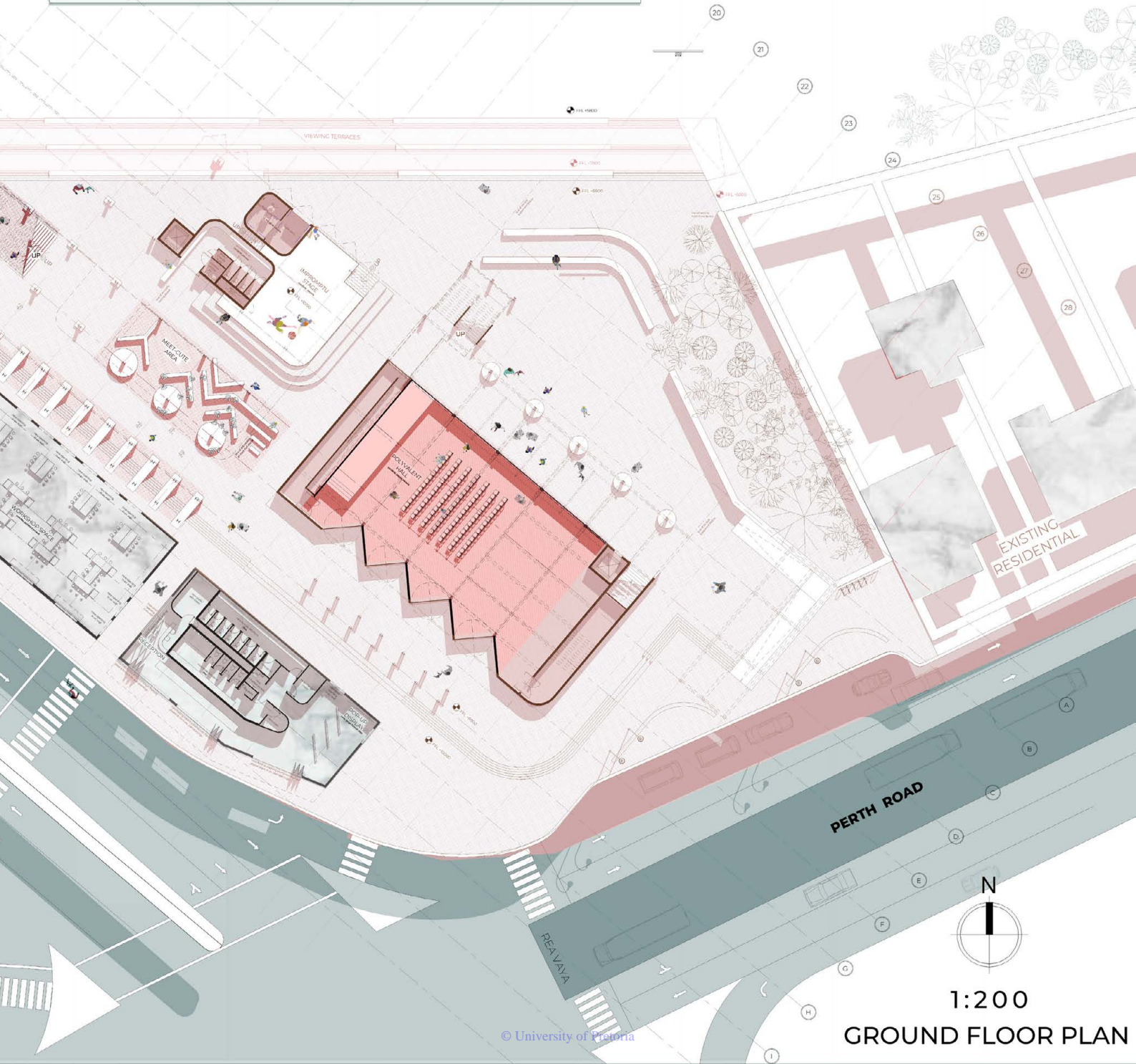
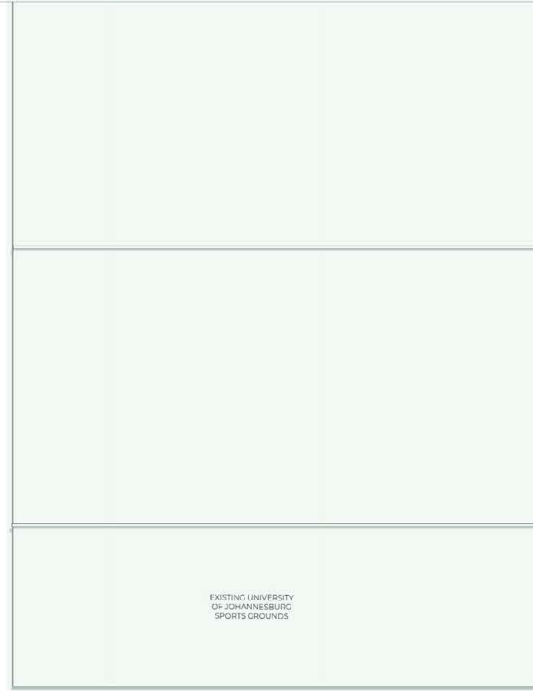
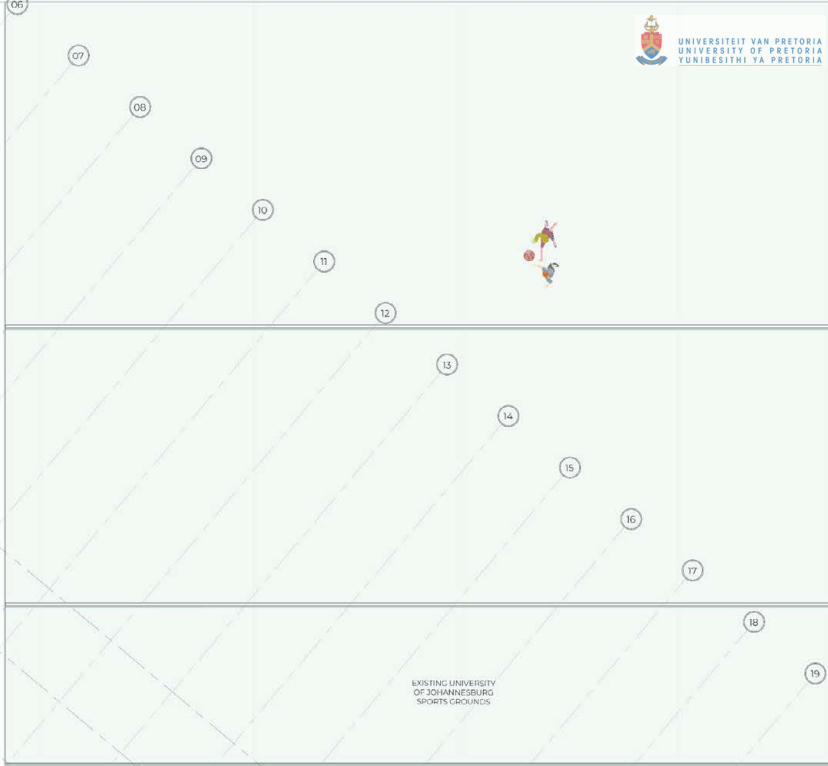
7.3 design response + final presentation

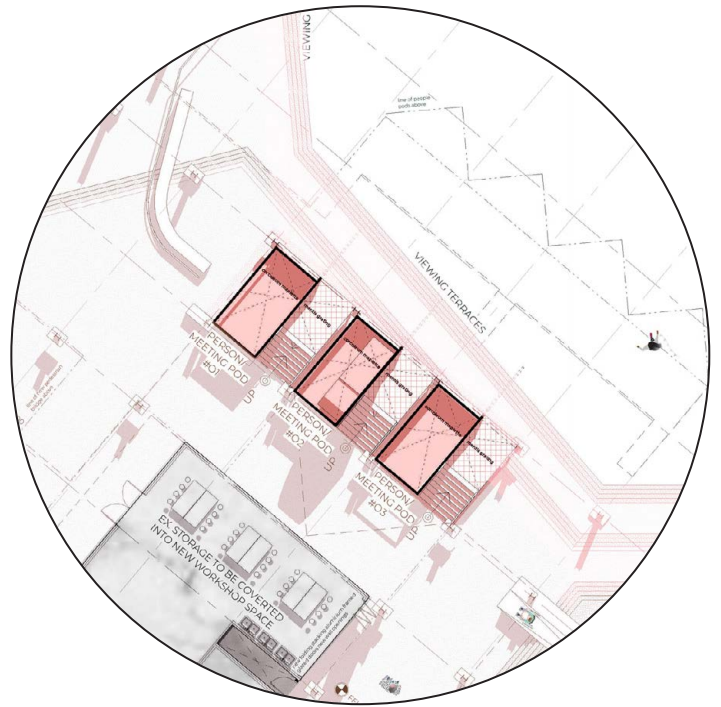
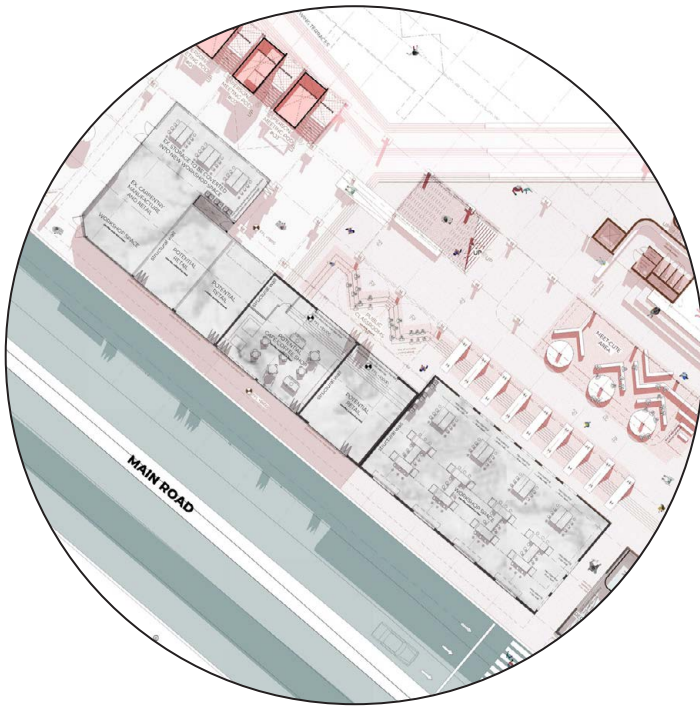




1:500
SITE PLAN







- ECONOMIC + EDUCATIONAL
- EDUCATIONAL
- ECONOMIC

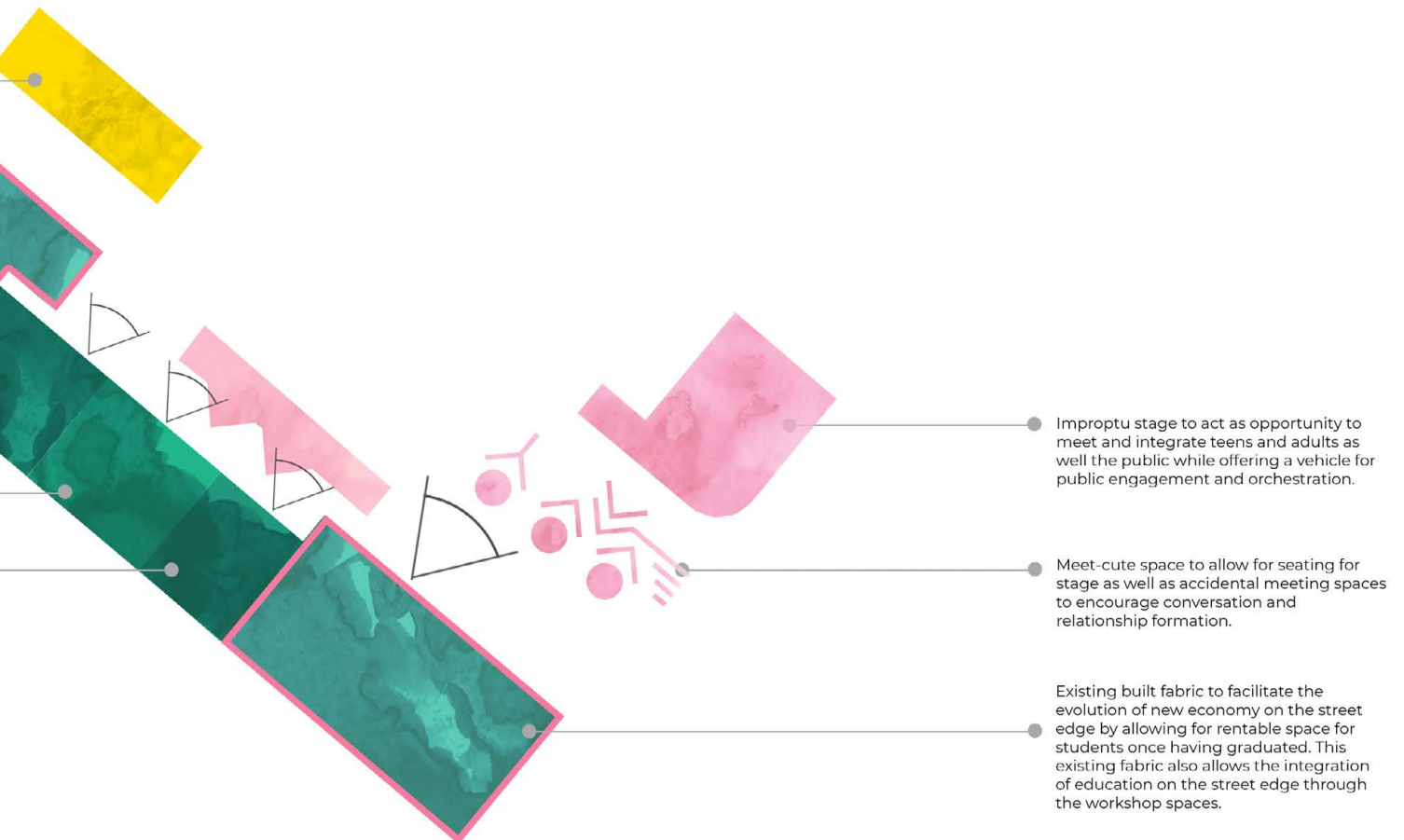
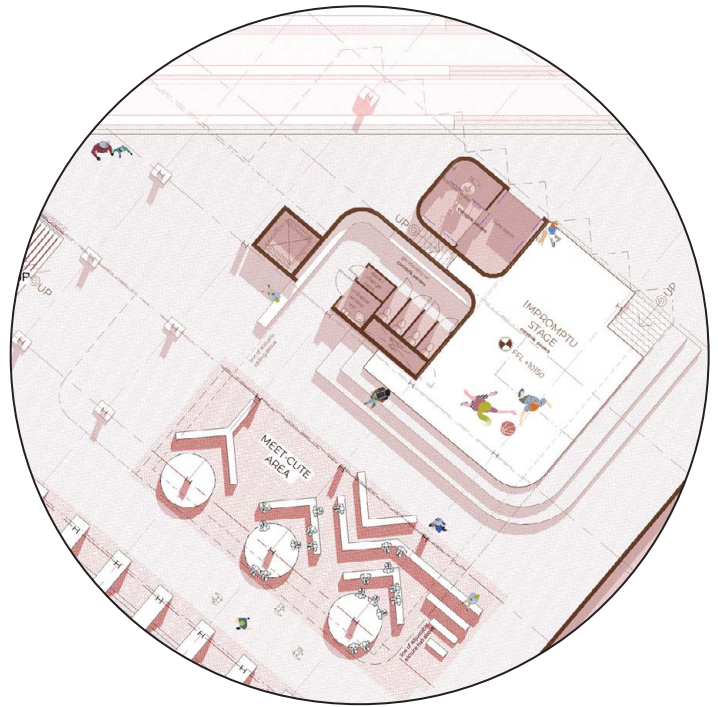
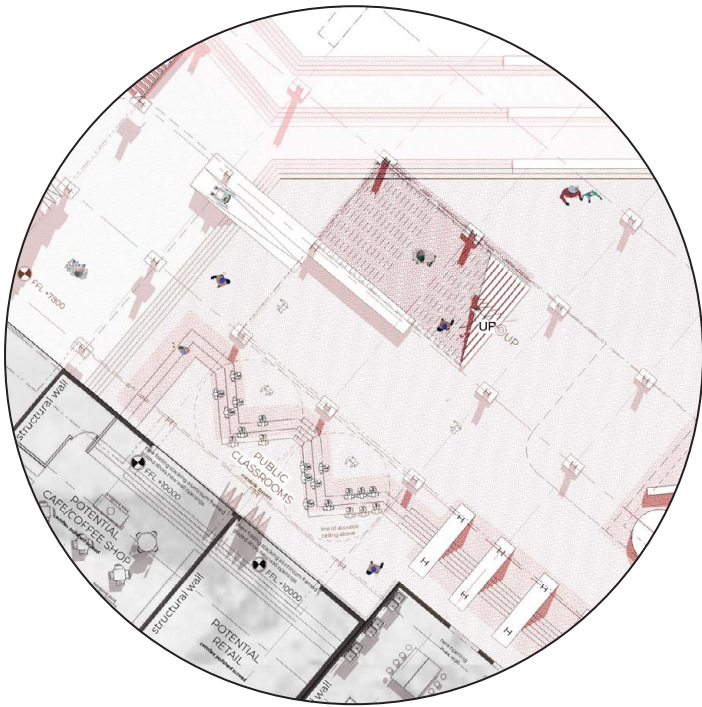
Pod spaces accommodate from 1 to 4 people at a time, therefore, these spaces are able to accommodate individual or pair learning, business meetings, job interviews and homework areas. These areas are the most private spaces throughout the building.

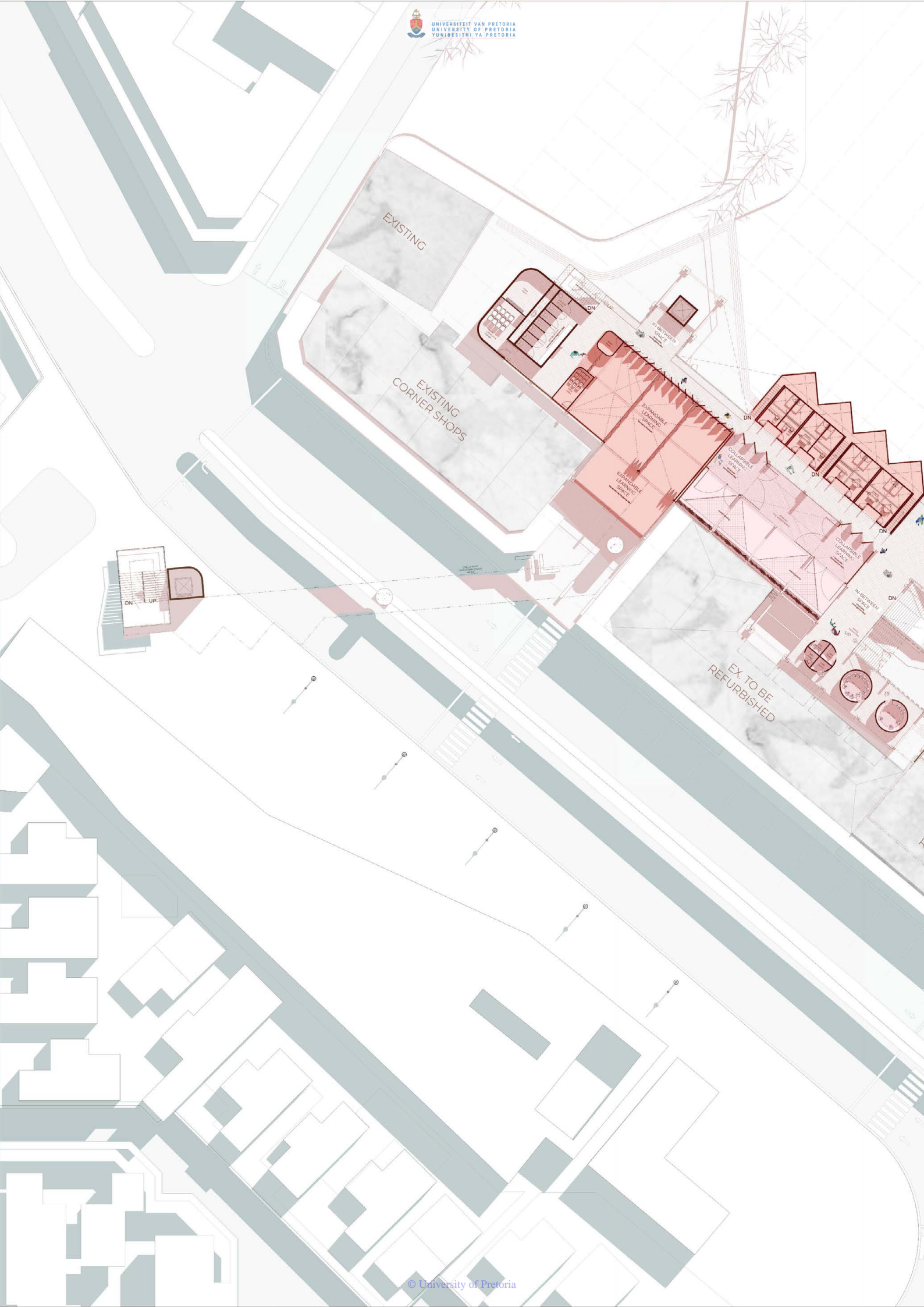
Existing built fabric to facilitate the evolution of new economy on the street edge by allowing for rentable space for students once having graduated. This existing fabric also allows the integration of education on the street edge through the workshop spaces.

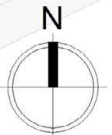
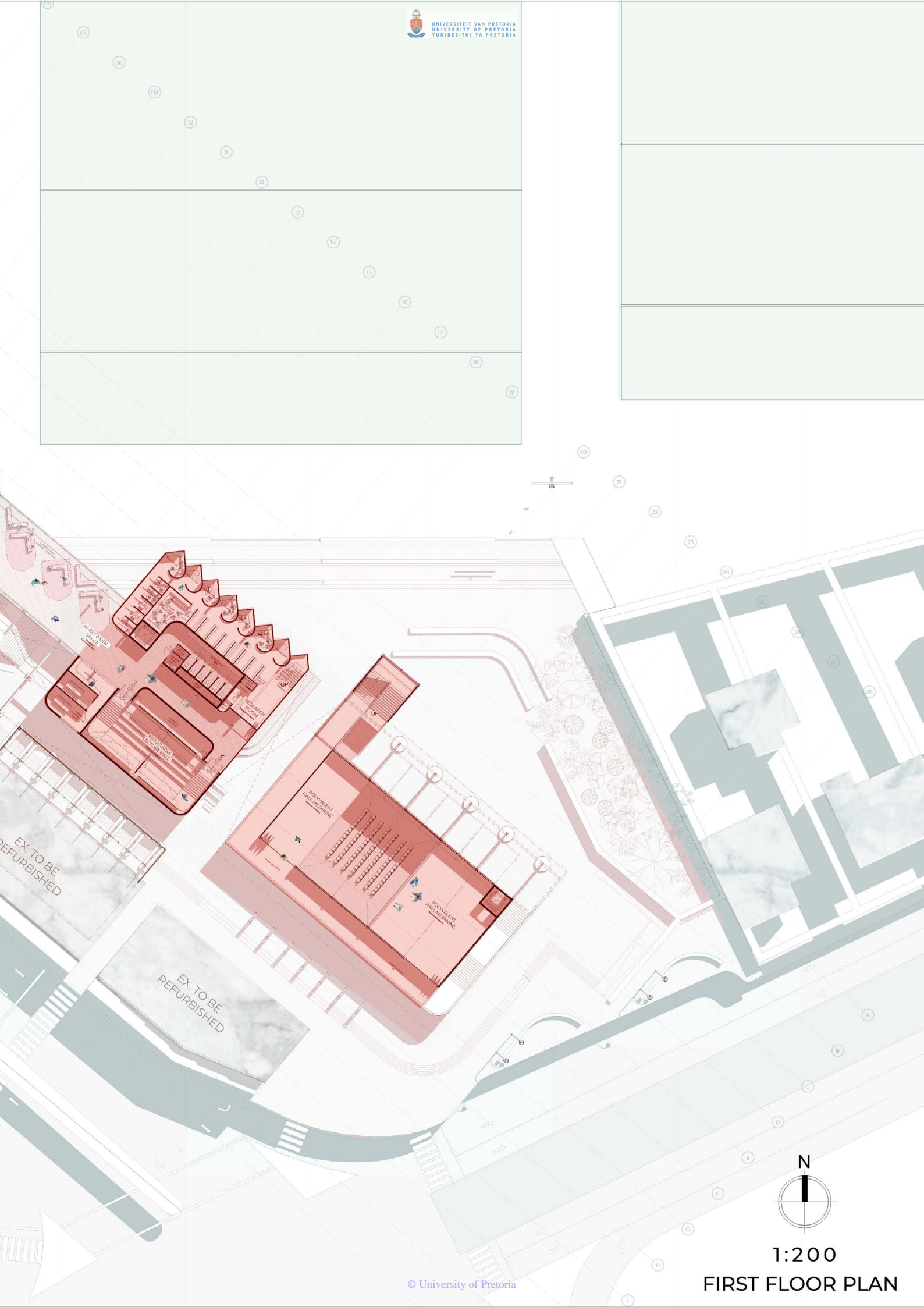
Existing built fabric to facilitate the evolution of new economy on the street edge by allowing for rentable space for students once having graduated. This existing fabric also allows the integration of education on the street edge through the workshop spaces.

The integration of rentable space encourages the permanent existence of economy or income generating activity at an affordable price to graduates of the School for In-Betweeners.

LINKING ECONOMY & EDUCATION - GROUND FLOOR PLAN

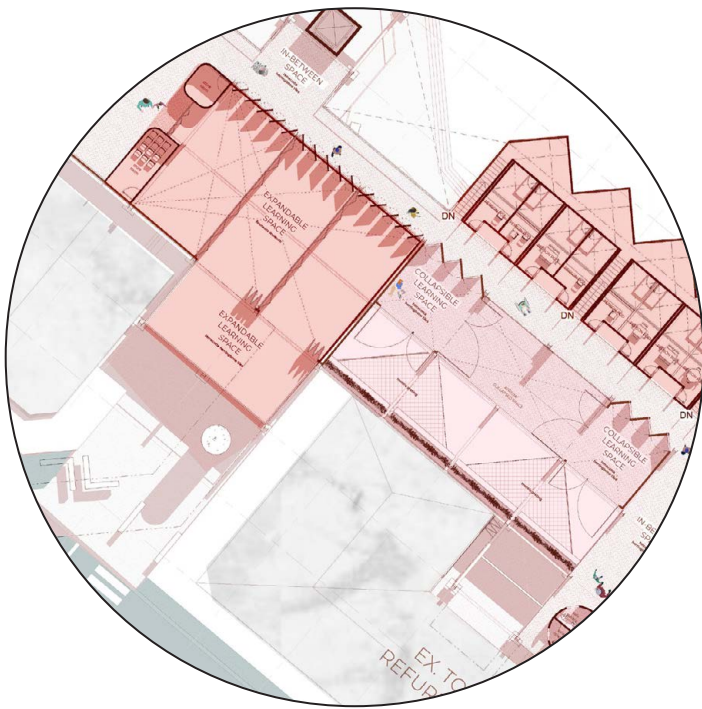






1:200

FIRST FLOOR PLAN



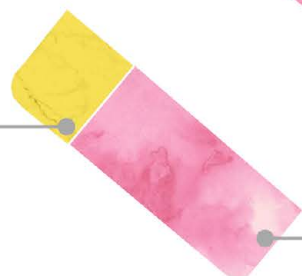
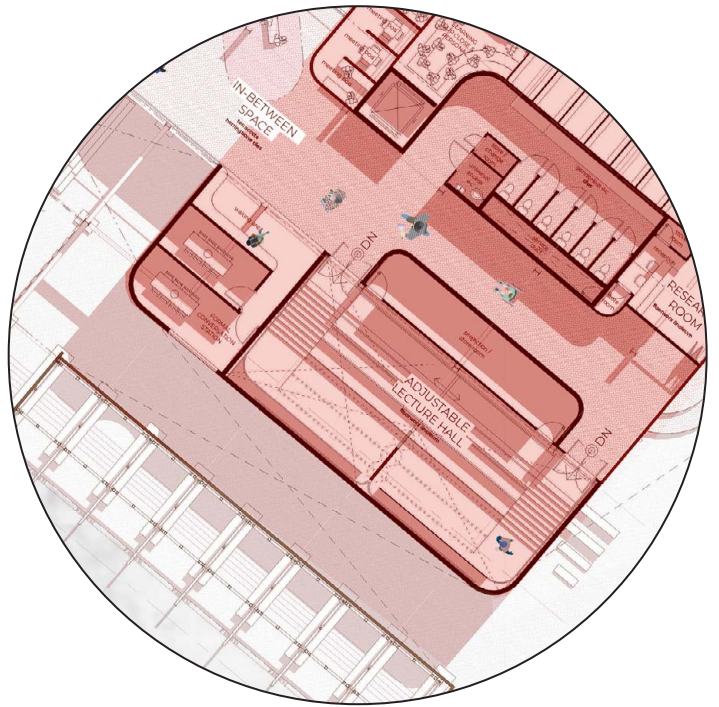
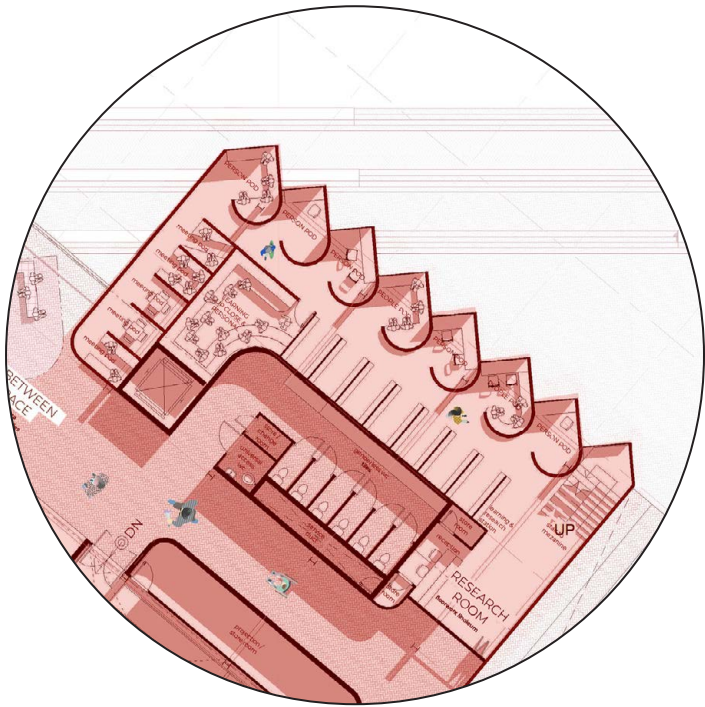
- ECONOMIC + EDUCATIONAL
- EDUCATIONAL
- ECONOMIC

Improptu stage to act as opportunity to meet and integrate teens and adults as well the public while offering a vehicle for public engagement and orchestration.

The safe spaces exist as a series of counselling facilities for the students. These spaces are also able to be used as spaces to hold meetings or as learning spaces,

The threading of formal meeting spaces throughout the structure allows for there to be constant integration between business and learning .

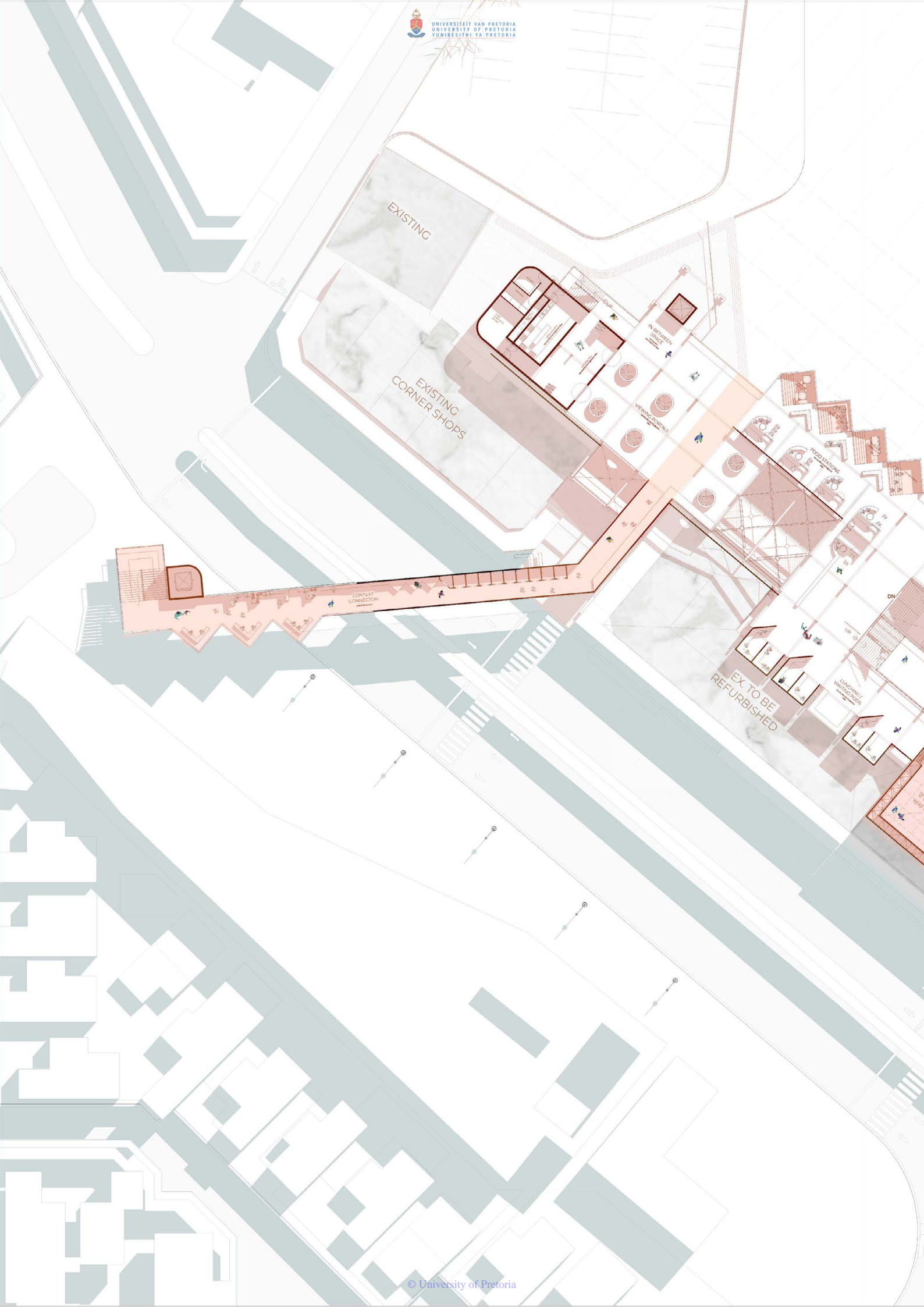
LINKING ECONOMY & EDUCATION - FIRST FLOOR PLAN

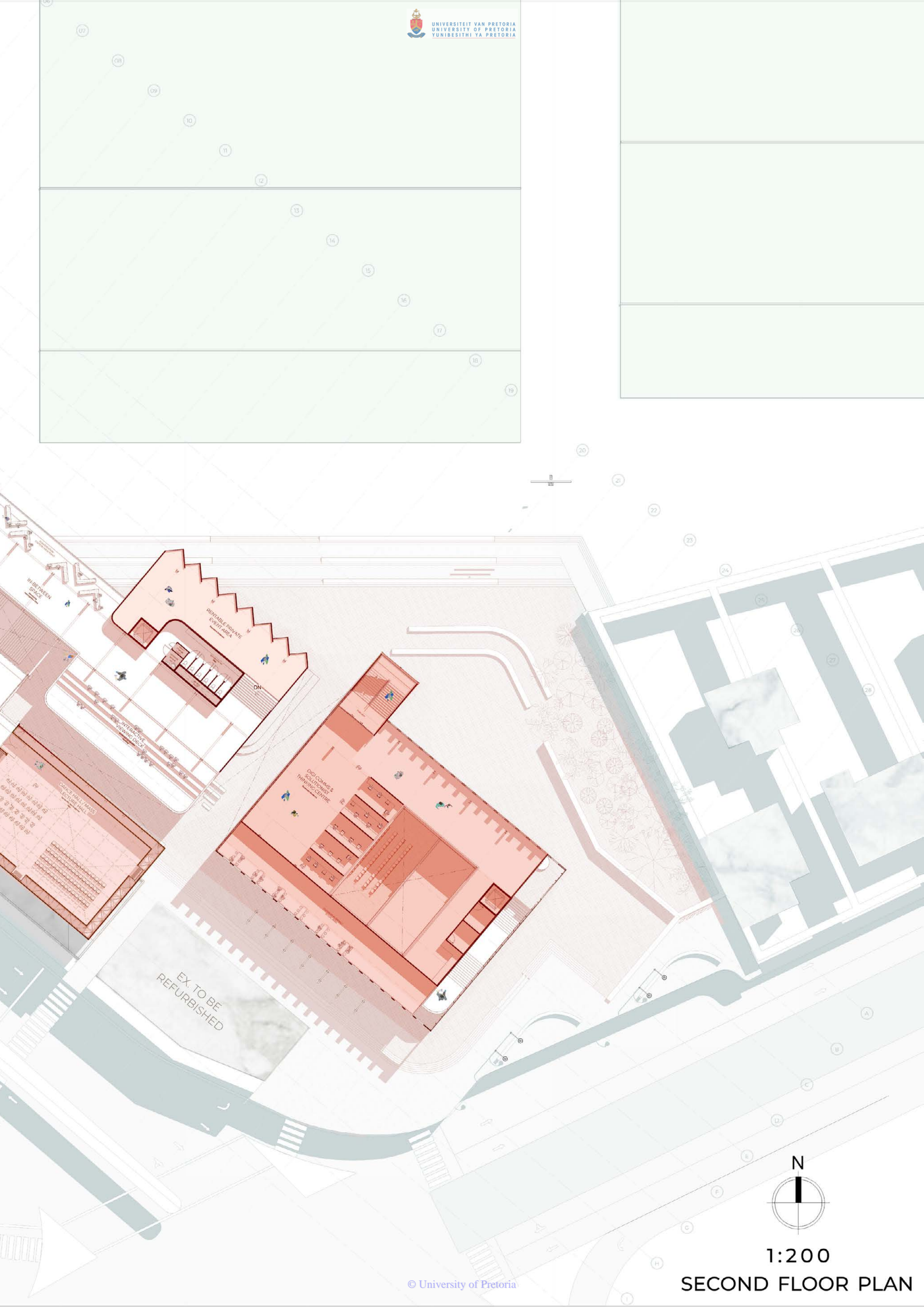


Pod spaces accommodate from 1 to 4 people at a time, therefore, these spaces are able to accommodate individual or pair learning, business meetings, job interviews and homework areas. These areas are the most private spaces throughout the building.

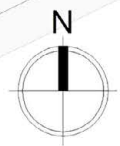
The Research Centre provides space for learners to work individually with close access to research material. This facility is also available to the public through signing in.

The adjustable lecture hall allows for there to be one large scale lecture or two small scale lectures in order to facilitate simultaneous presentations or classes.



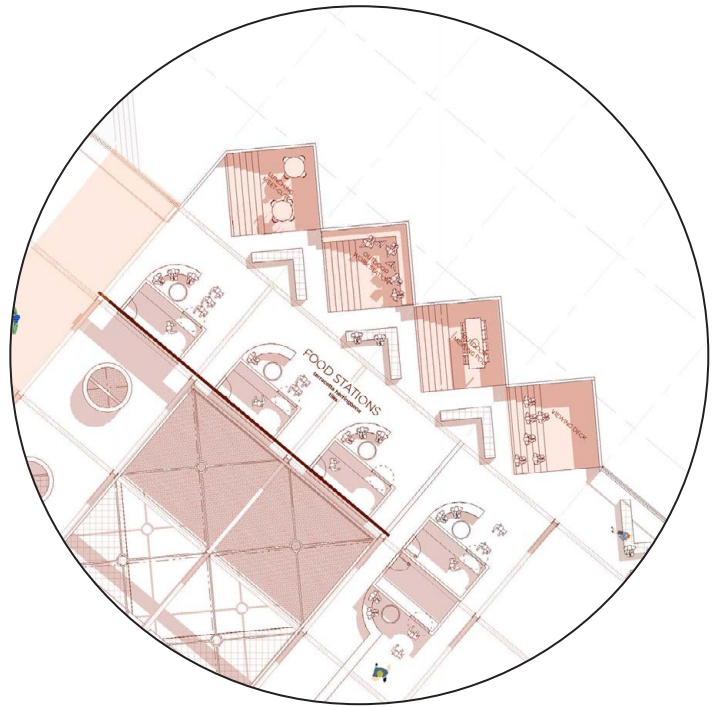
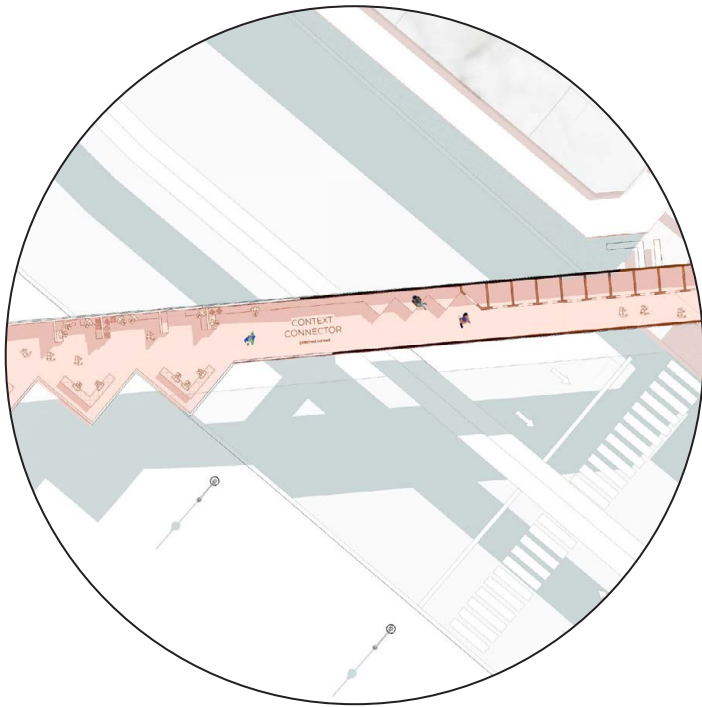


WESTERN OFFICE
RENTABLE PRIVATE EVENT AREA
DISCUSSION & THINKING CENTRE
CONCOURSE
EX-TO BE REFURBISHED

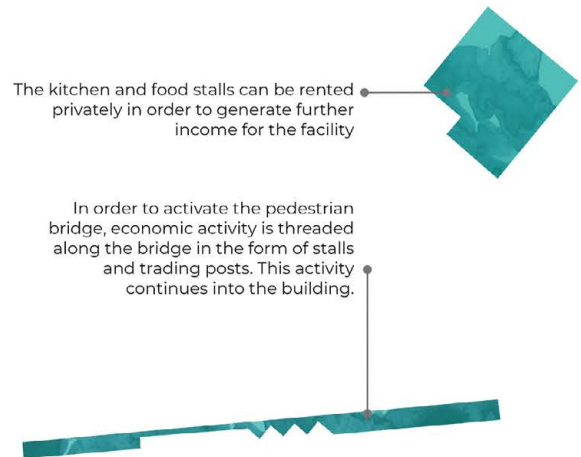


1:200

SECOND FLOOR PLAN



- ECONOMIC + EDUCATIONAL
- EDUCATIONAL
- ECONOMIC

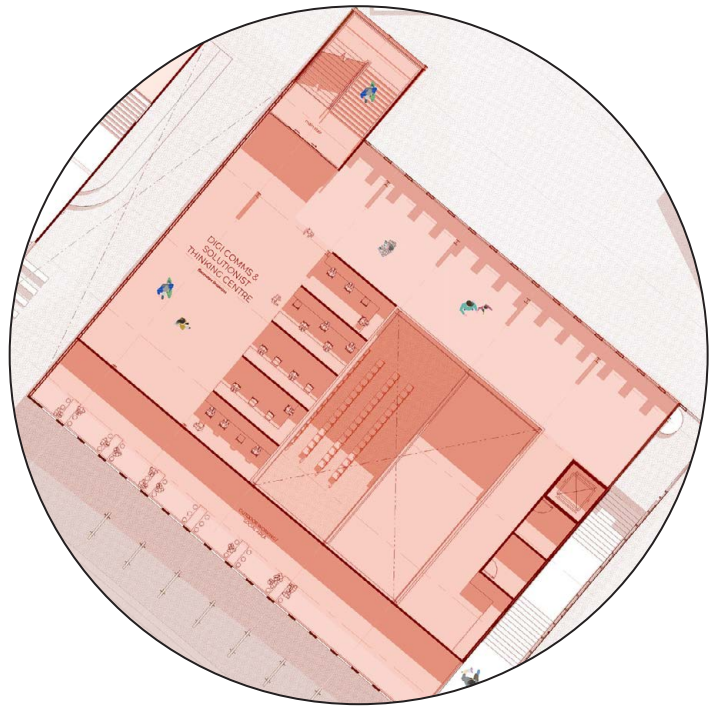
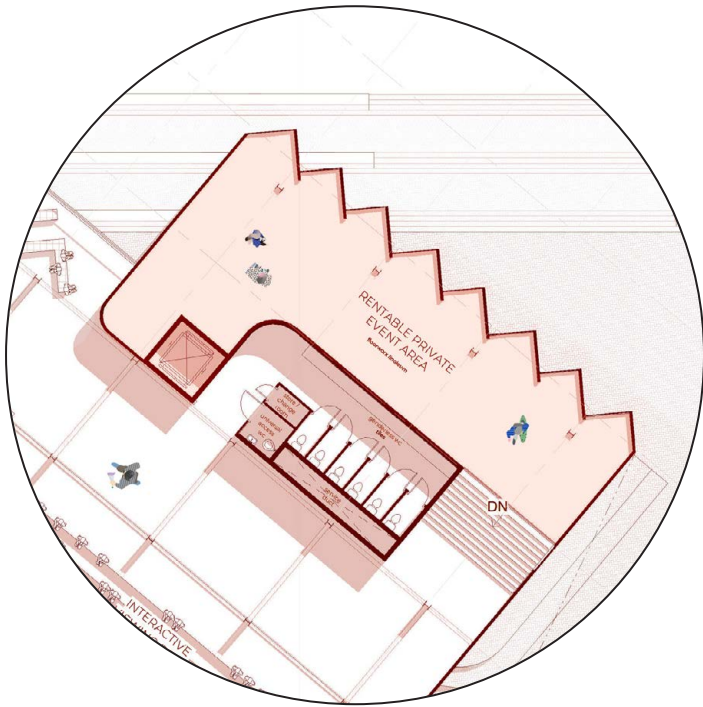


The kitchen and food stalls can be rented privately in order to generate further income for the facility

In order to activate the pedestrian bridge, economic activity is threaded along the bridge in the form of stalls and trading posts. This activity continues into the building.

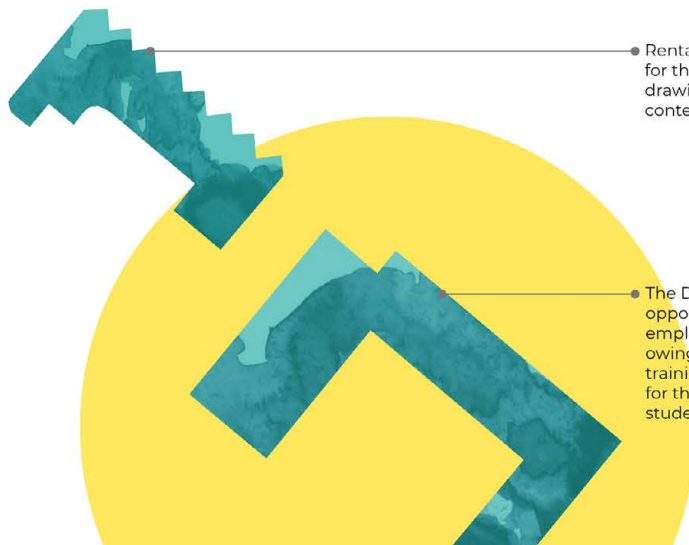
Private
private
allow
business
scale b

LINKING ECONOMY & EDUCATION - SECOND FLOOR PLAN



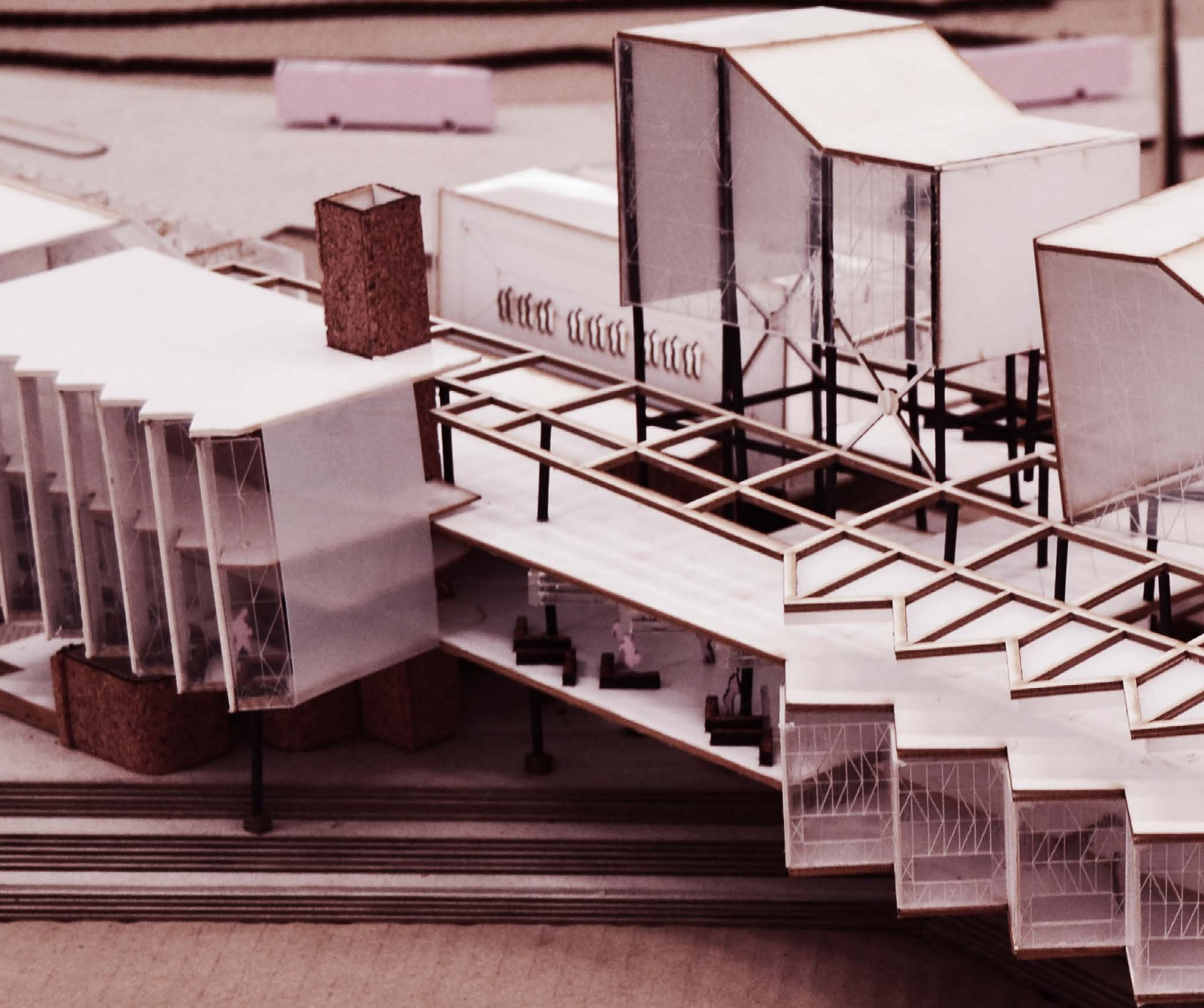
Spaza shop stalls allow for extra rental income for the facility and allow for students to experiment with business ideas on a small and affordable scale before starting intensive buildings.

Viewing boxes may be rented out to the public on days that there are festive sports events.

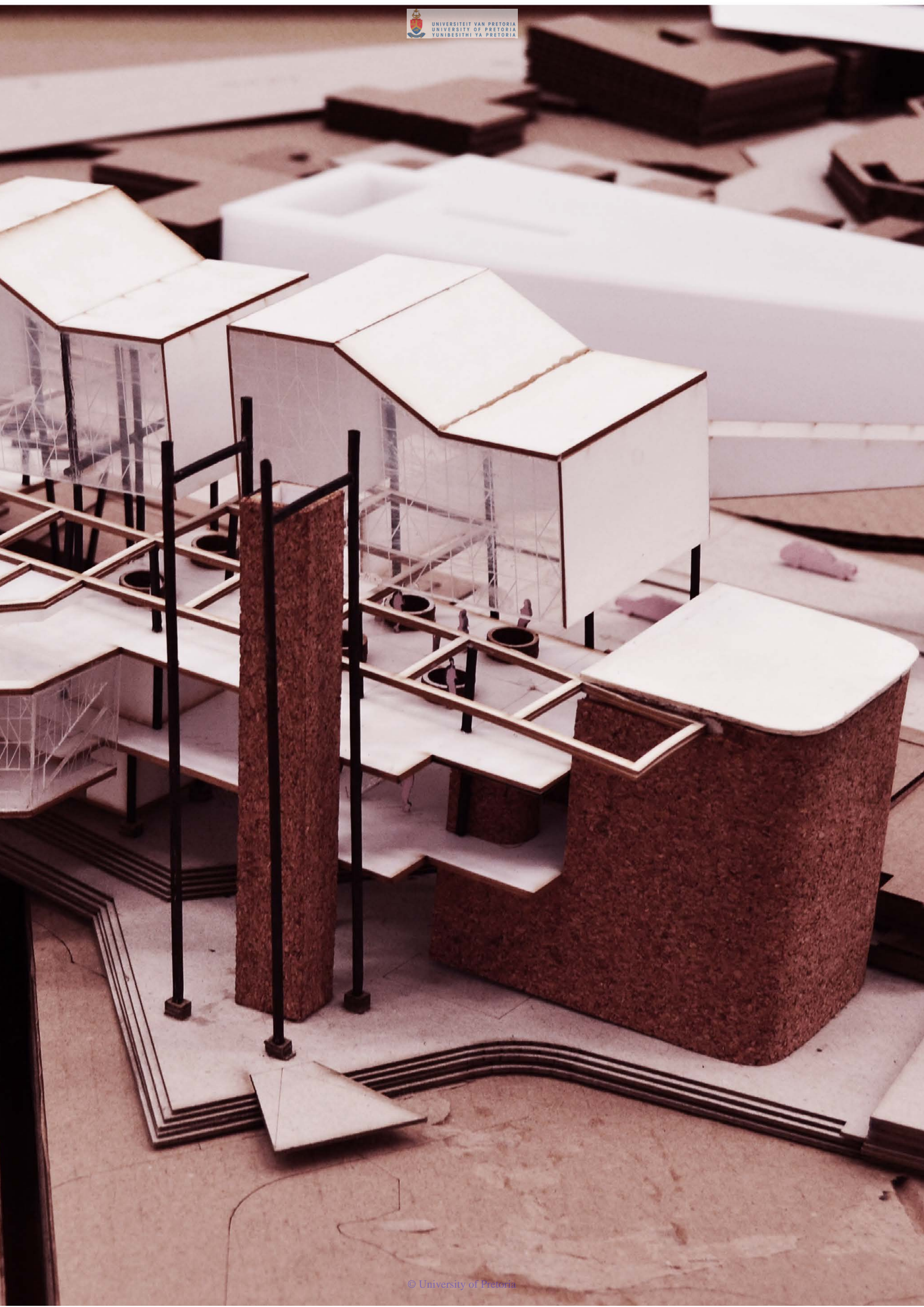


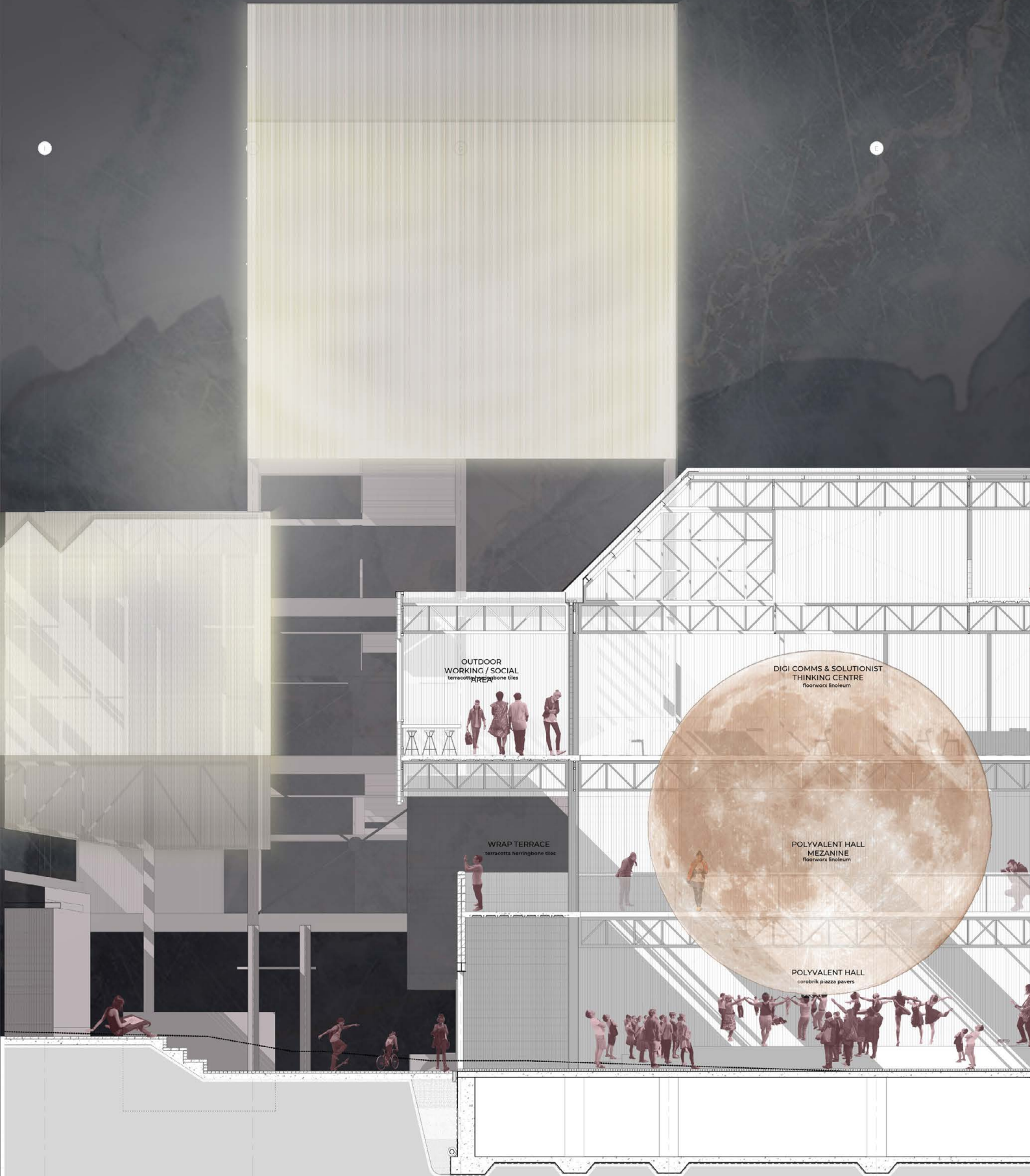
Rentable public event space allows for the public to access the facility, drawing connections between the context and the community.

The Digi Comms centre gives the opportunity to students of being employed while learning. This is possible owing to only needing a short period of training before employment. This allows for the economic enablement of each student.



THE FINAL MODEL





OUTDOOR
WORKING / SOCIAL
terracotta herringbone tiles

DIGI COMMS & SOLUTIONIST
THINKING CENTRE
floorworx linoleum

WRAP TERRACE
terracotta herringbone tiles

POLYVALENT HALL
MEZANINE
floorworx linoleum

POLYVALENT HALL
corobrik piazza pavers

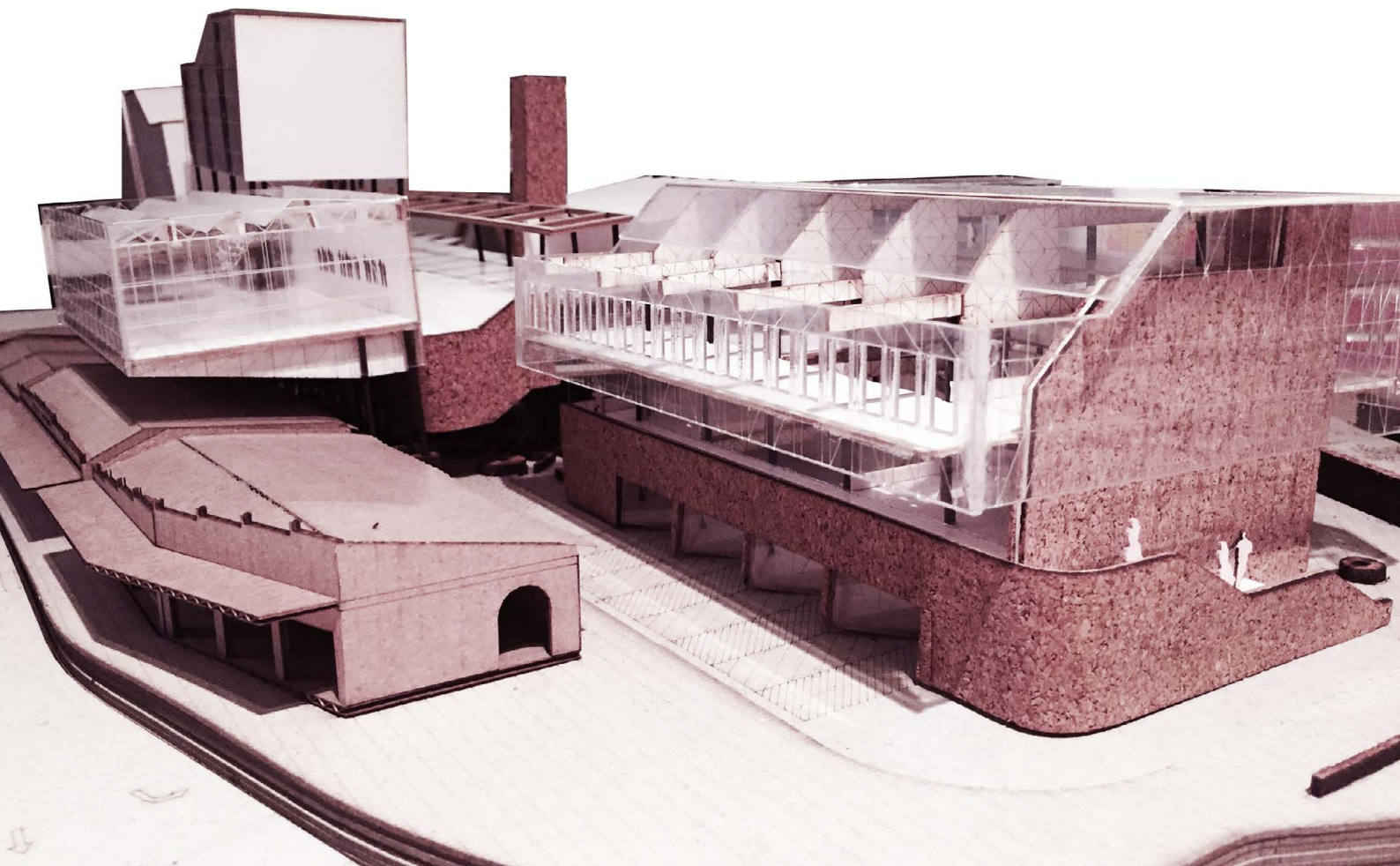
N-S SECTION THROUGH
POLYVALENT HALL
SCALE 1:50

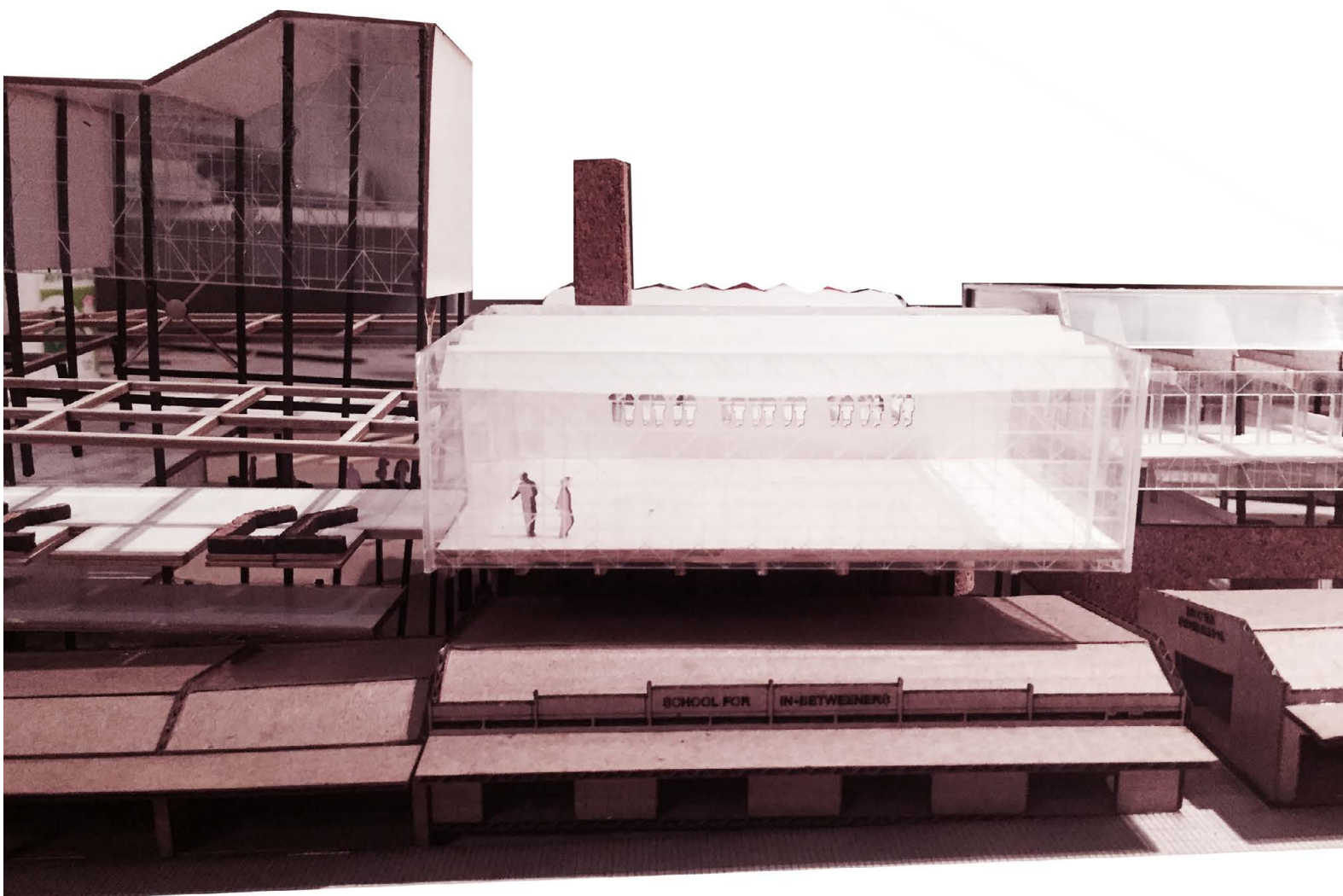
'MUSEUM OF THE MOON' COMES TO WESTBURY

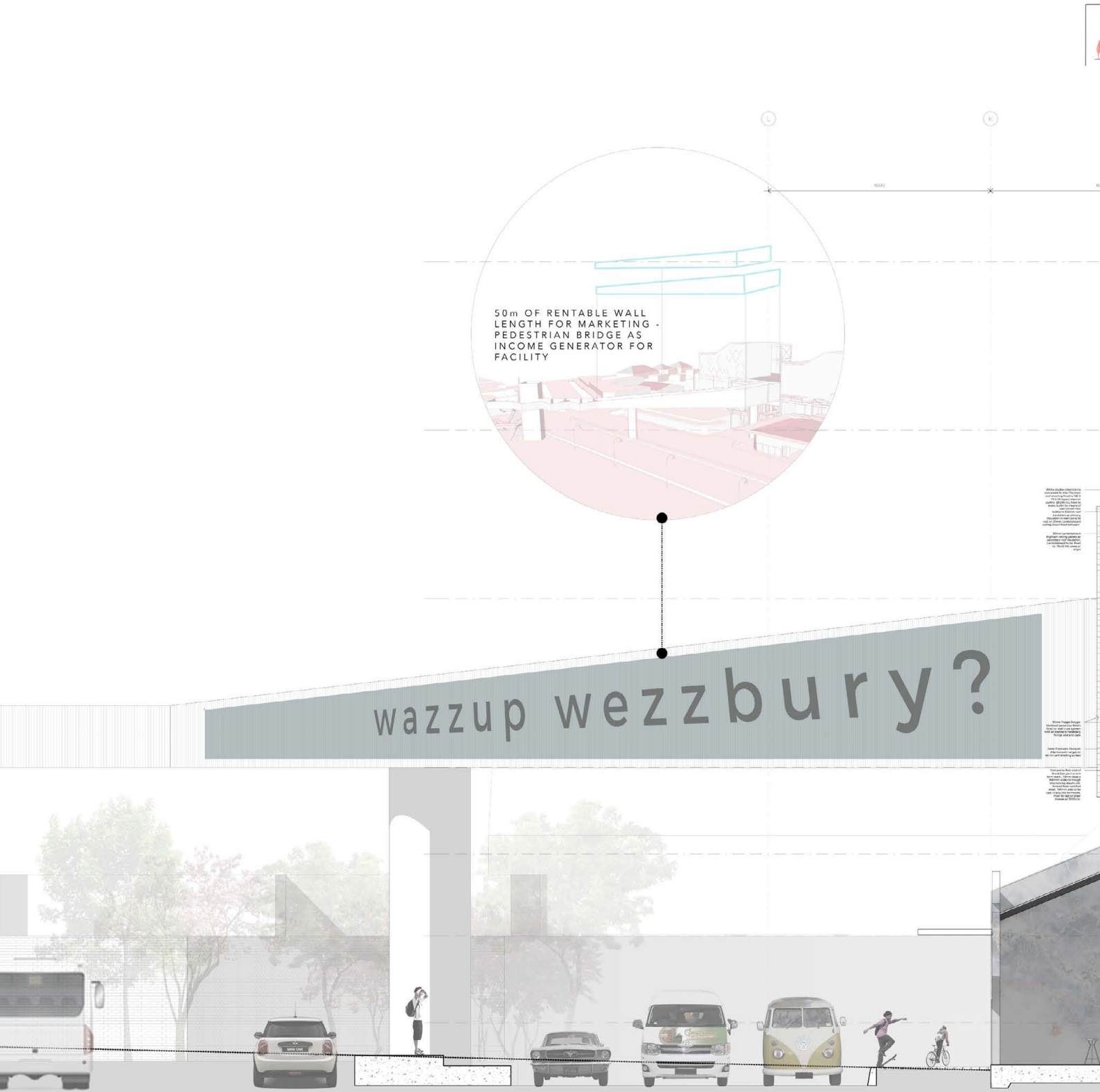
A 7m diameter holographic moon projection by artist Luke Jerram is travelling the world and giving users an HD experience of the moon's surface. Its next stop is Westbury.



THE FINAL MODEL







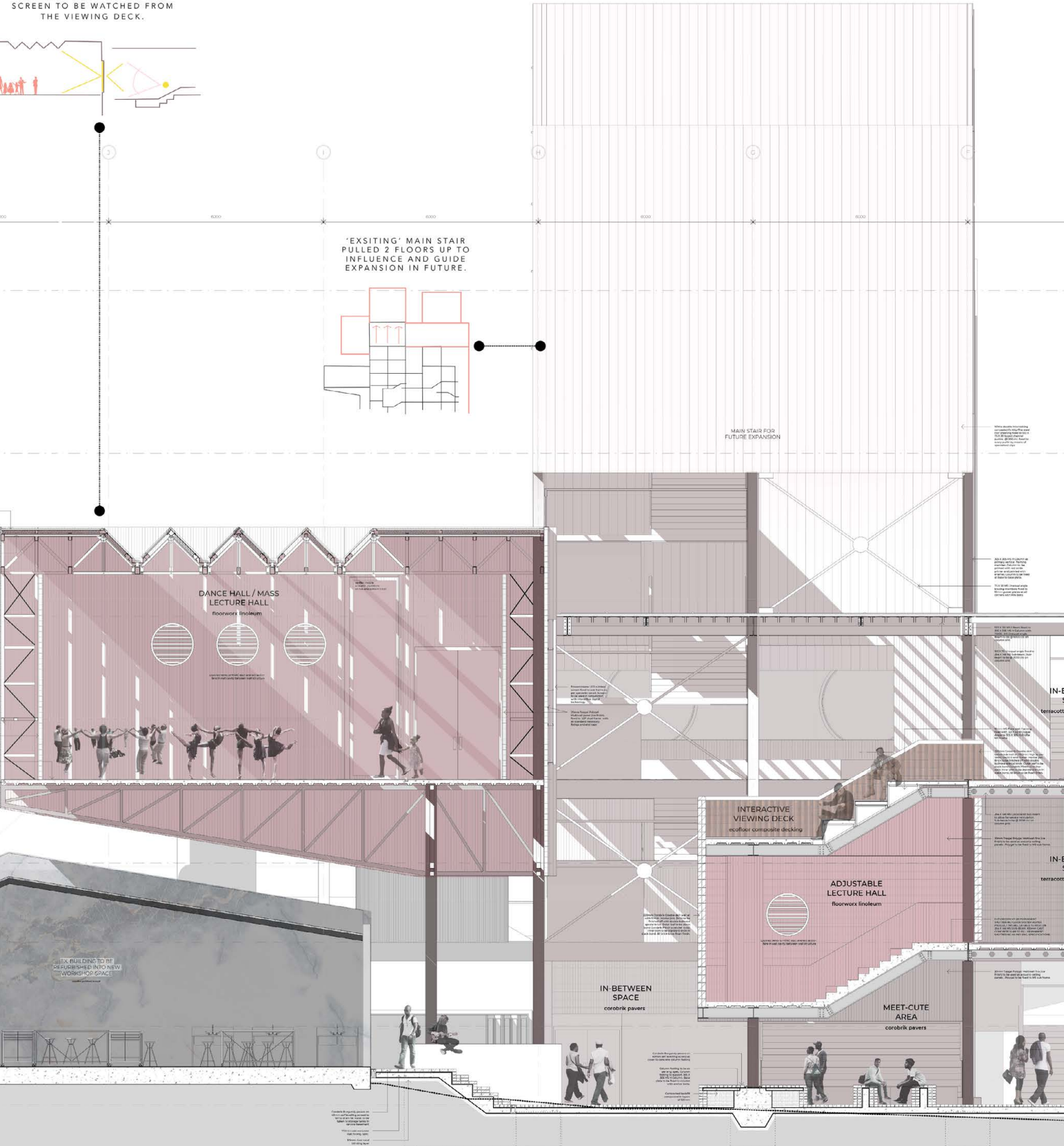
Architectural drawing details and notes, including a vertical scale on the right side.

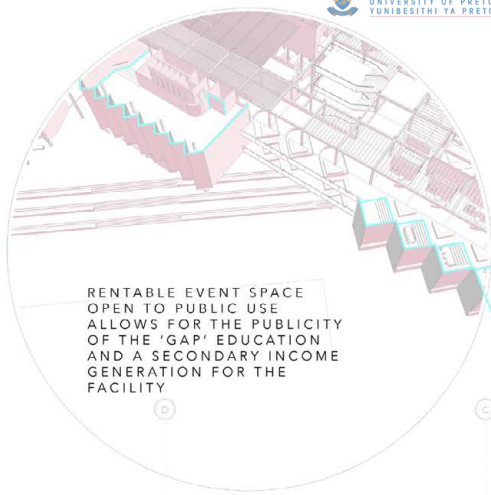
N-S CROSS SECTION
SCALE 1:50

DANCE HALL ABLE TO ACCOMMODATE UP TO 240 PEOPLE (1.5m / person as per SANS 10400-).

IF USED IN CONJUNCTION WITH THE INTERACTIVE VIEWING DECK CAN HOST AN EVENT OF 355 PEOPLE.

THE EVENT WITHIN THE HALL CAN BE PROJECTED ONTO THE EXTERIOR WALL ON THE LED SCREEN TO BE WATCHED FROM THE VIEWING DECK.





RENTABLE EVENT SPACE
OPEN TO PUBLIC USE
ALLOWS FOR THE PUBLICITY
OF THE 'GAP' EDUCATION
AND A SECONDARY INCOME
GENERATION FOR THE
FACILITY

E

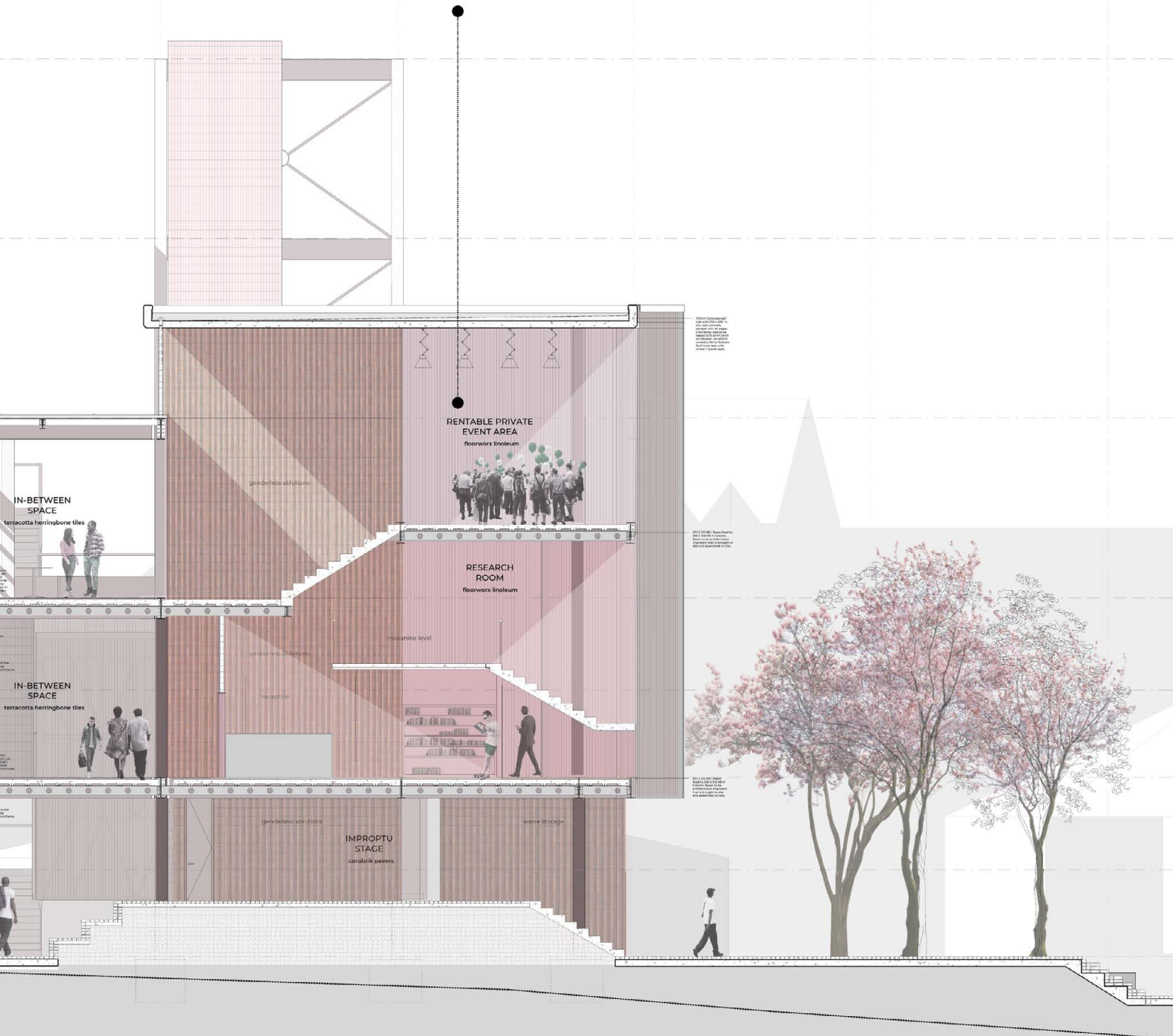
D

C

B

A

6000 6000 6000 6000 6000



IN-BETWEEN
SPACE
terracotta herringbone tiles

IN-BETWEEN
SPACE
terracotta herringbone tiles

RENTABLE PRIVATE
EVENT AREA
floorwax linoleum

RESEARCH
ROOM
floorwax linoleum

mezzanine level

IMPROPTU
STAGE
corobrik beams

gendales abutonis

gendales abutonis

reception

gendales abutonis

waste storage

010 1 210 461 - Room Number
010 1 210 462 - Reception
010 1 210 463 - Event Space
010 1 210 464 - Research Room
010 1 210 465 - Mezzanine Level
010 1 210 466 - Improptu Stage

010 1 210 461 - Room Number
010 1 210 462 - Reception
010 1 210 463 - Event Space
010 1 210 464 - Research Room
010 1 210 465 - Mezzanine Level
010 1 210 466 - Improptu Stage

010 1 210 461 - Room Number
010 1 210 462 - Reception
010 1 210 463 - Event Space
010 1 210 464 - Research Room
010 1 210 465 - Mezzanine Level
010 1 210 466 - Improptu Stage

OPEN DAY
2019

05 ROOFLINE
2150

04 FOURTH PFL
1700

03 THIRD PFL
1250

CONNECTION TO THE
EXISTING UNIVERSITY OF
JOHANNESBURG SPORTS
FIELDS ALLOWS FOR THE
INTEGRATION BETWEEN
INSTITUTIONS

0 2ND FROM LOWER
GROUND
7900

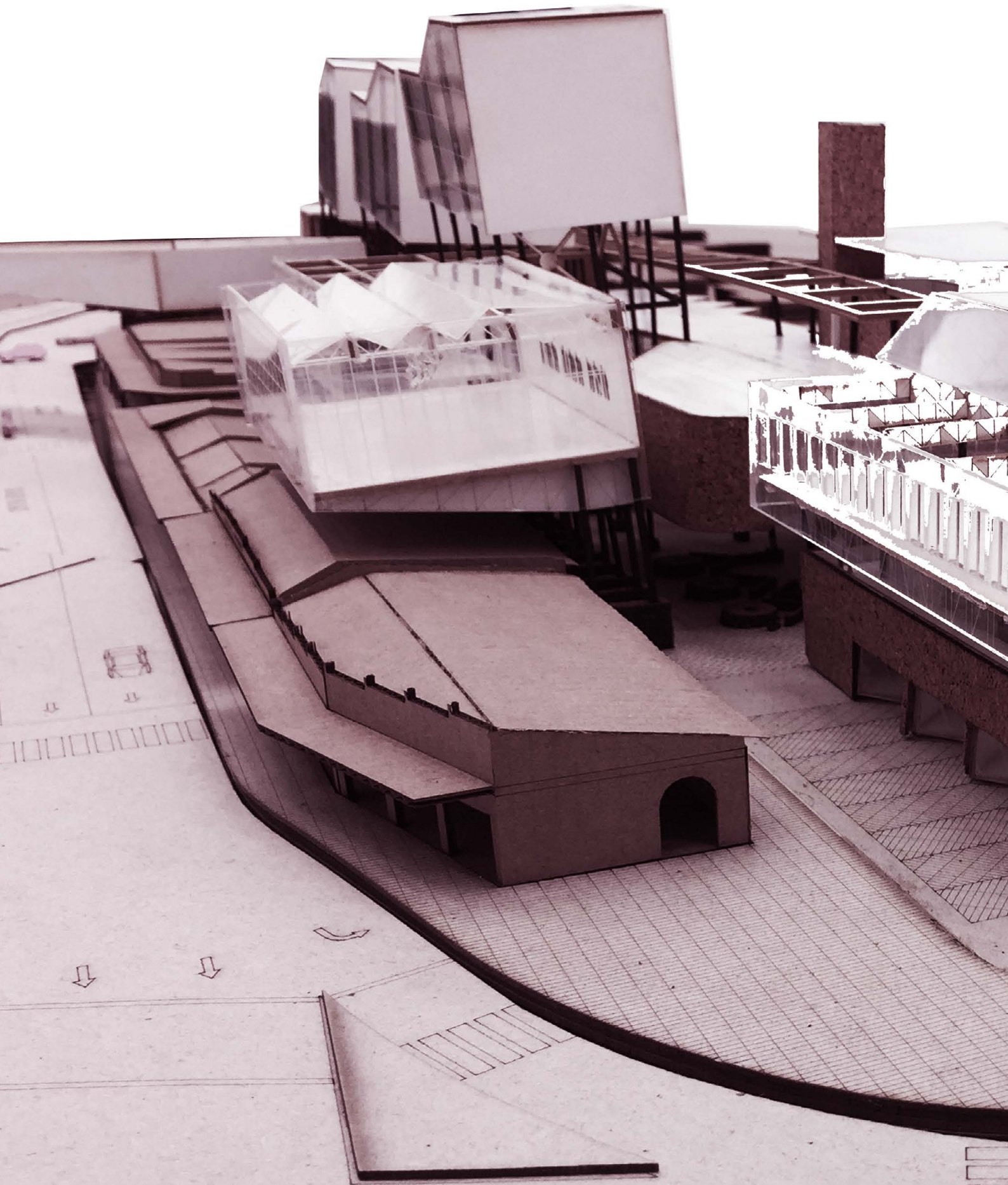
INTERVAL LEVEL 01
5500

0 1ST FROM LOWER
GROUND
3350

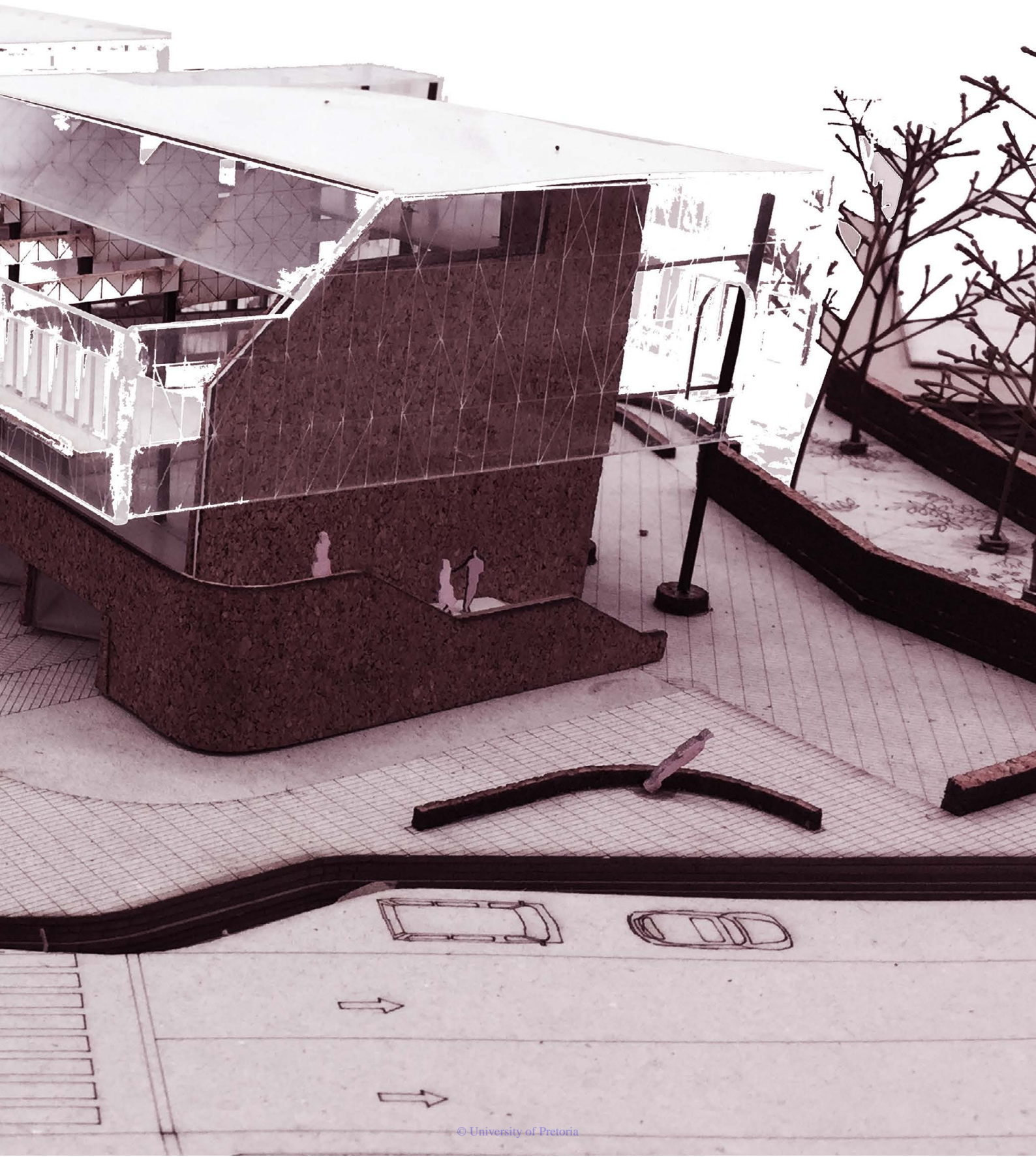
INTERVAL LEVEL 02
1000

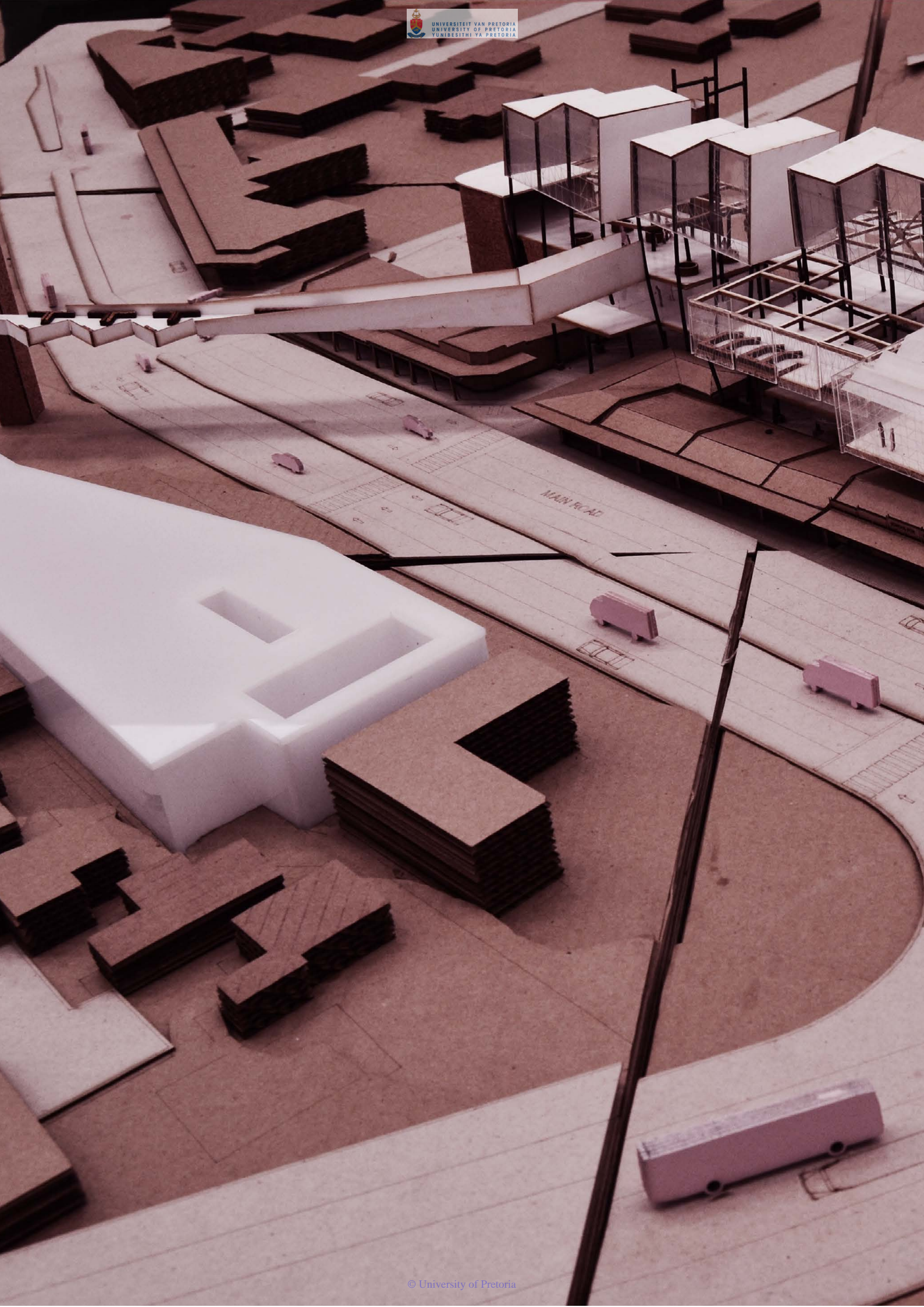
0 GROUND / LOWER
GROUND
-1200

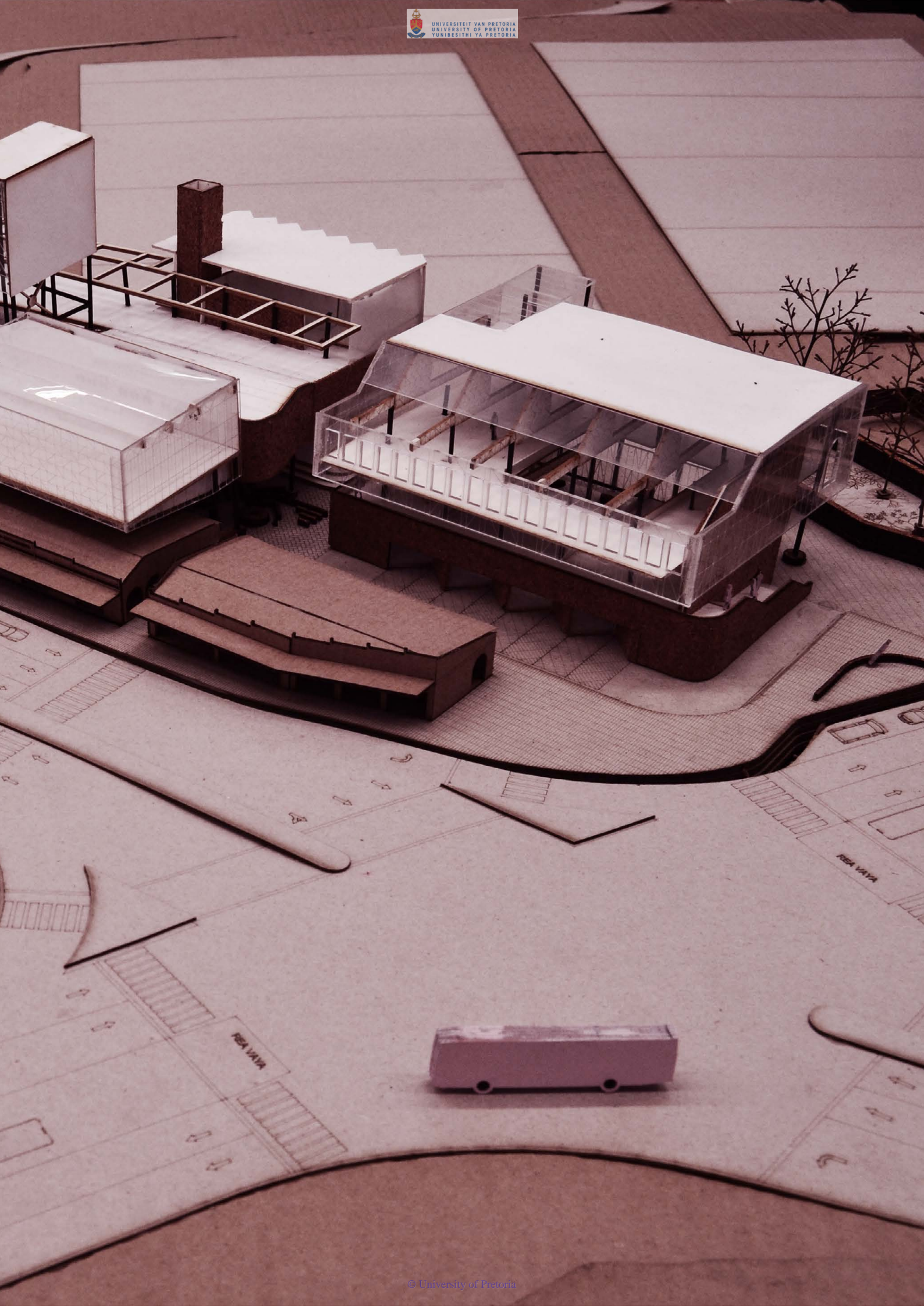




THE FINAL MODEL











- 7.1 concluding the exploration
- 7.2 response to questions posed
- 7.3 design response
- 7.4 end note

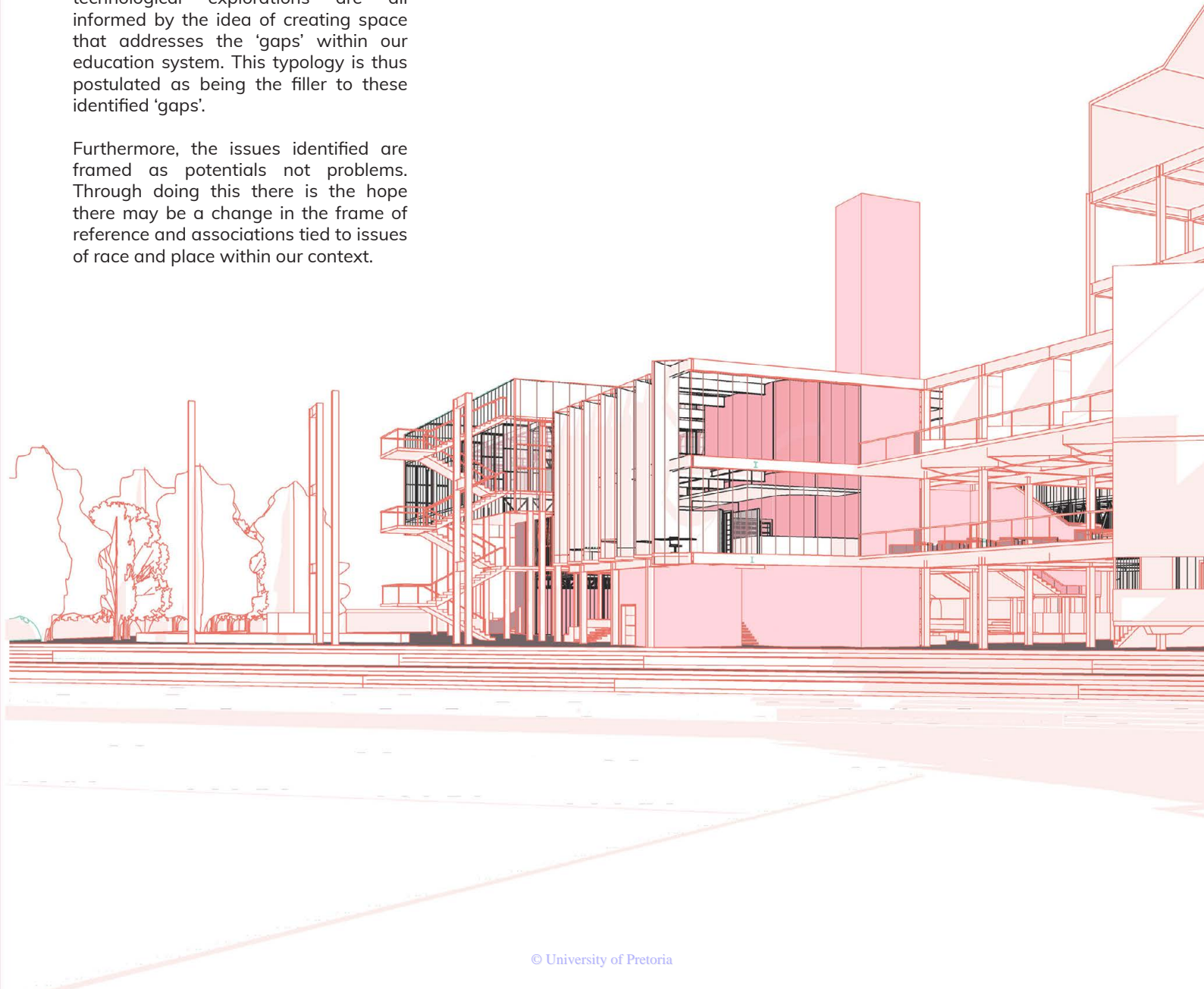
7.3 end note

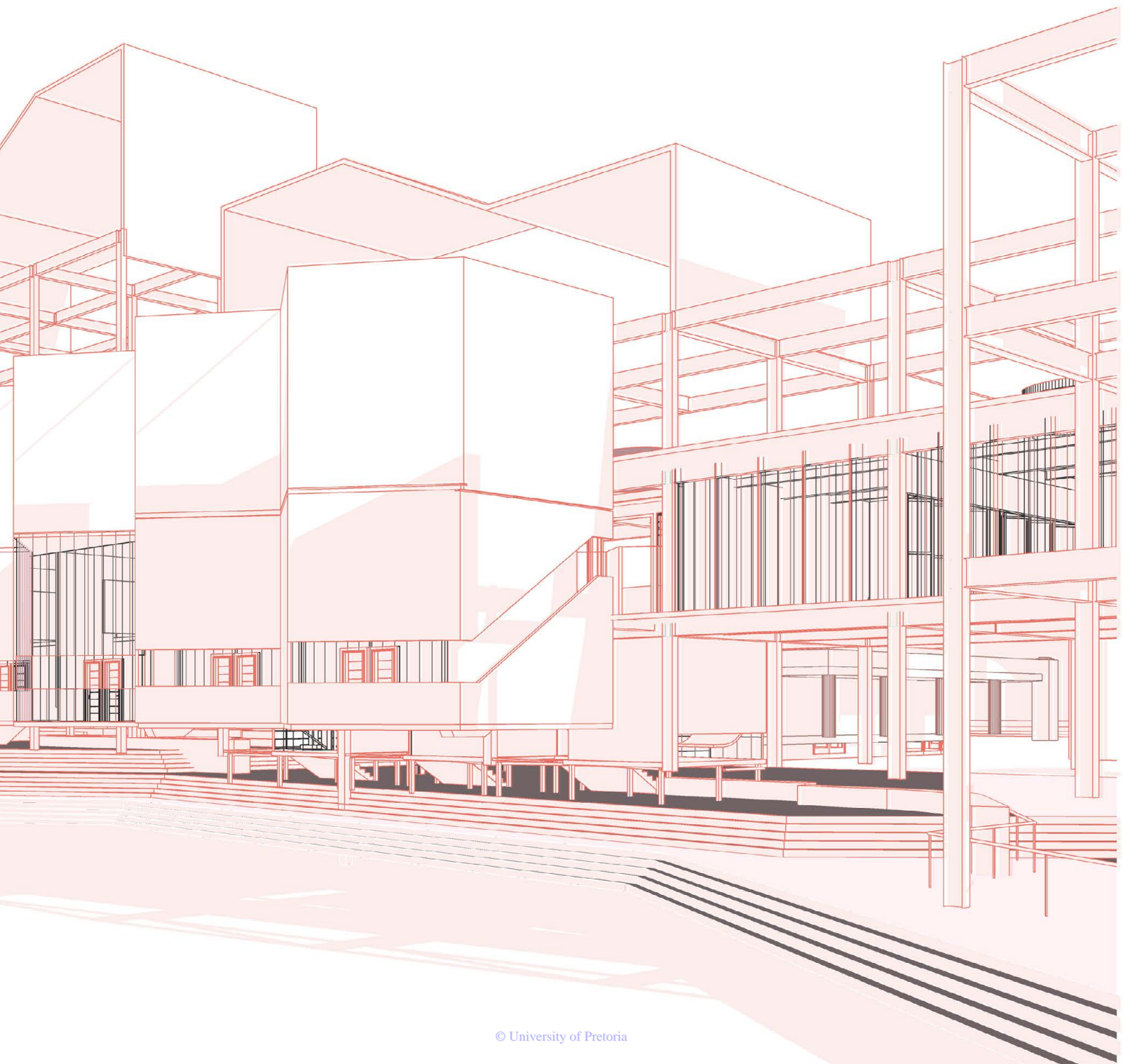
C O N T R I B U T I O N

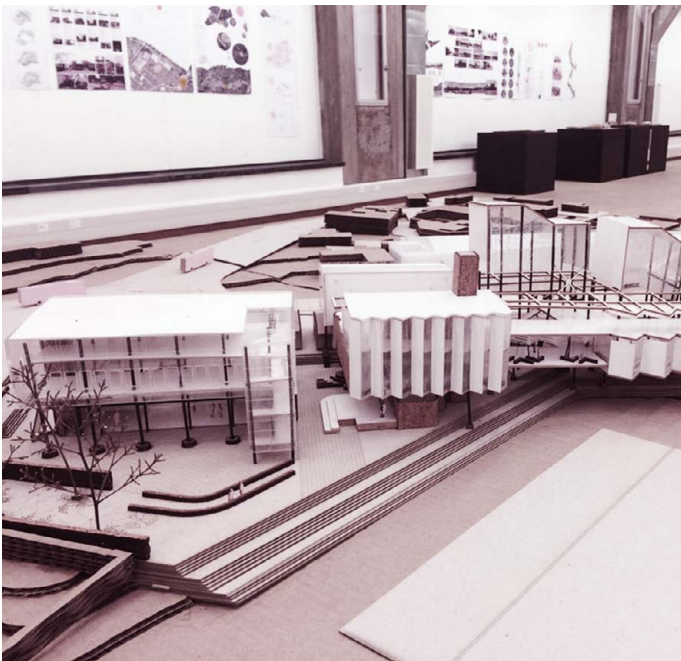
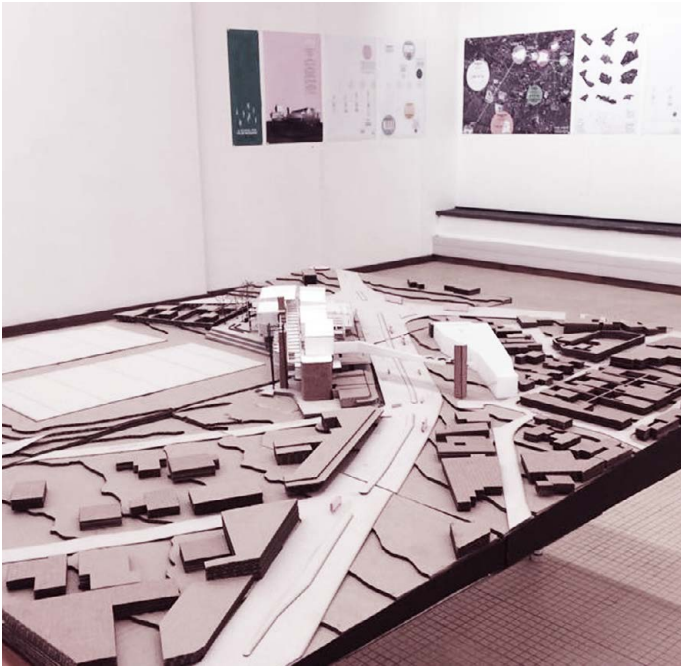
The contribution of this research document thus lies in navigating the 'in-between' through developing a typology that is particularly suited to this notion.

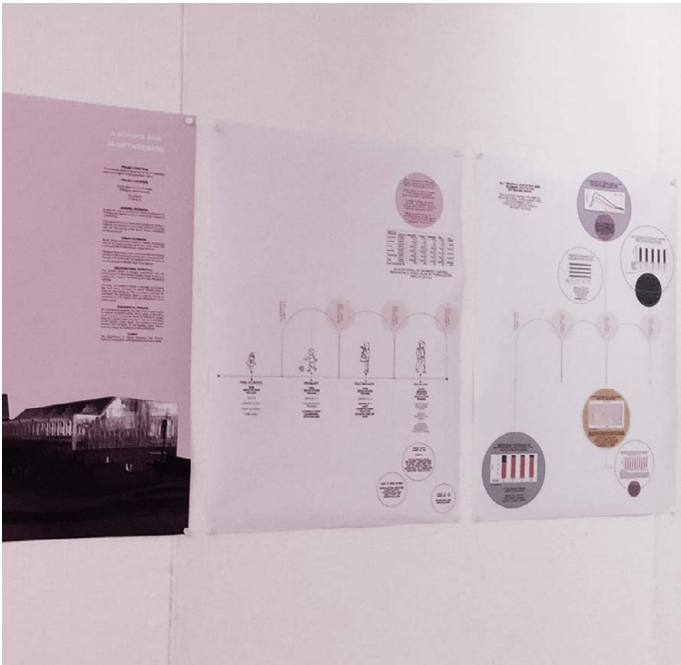
The program, space-making and technological explorations are all informed by the idea of creating space that addresses the 'gaps' within our education system. This typology is thus postulated as being the filler to these identified 'gaps'.

Furthermore, the issues identified are framed as potentials not problems. Through doing this there is the hope there may be a change in the frame of reference and associations tied to issues of race and place within our context.

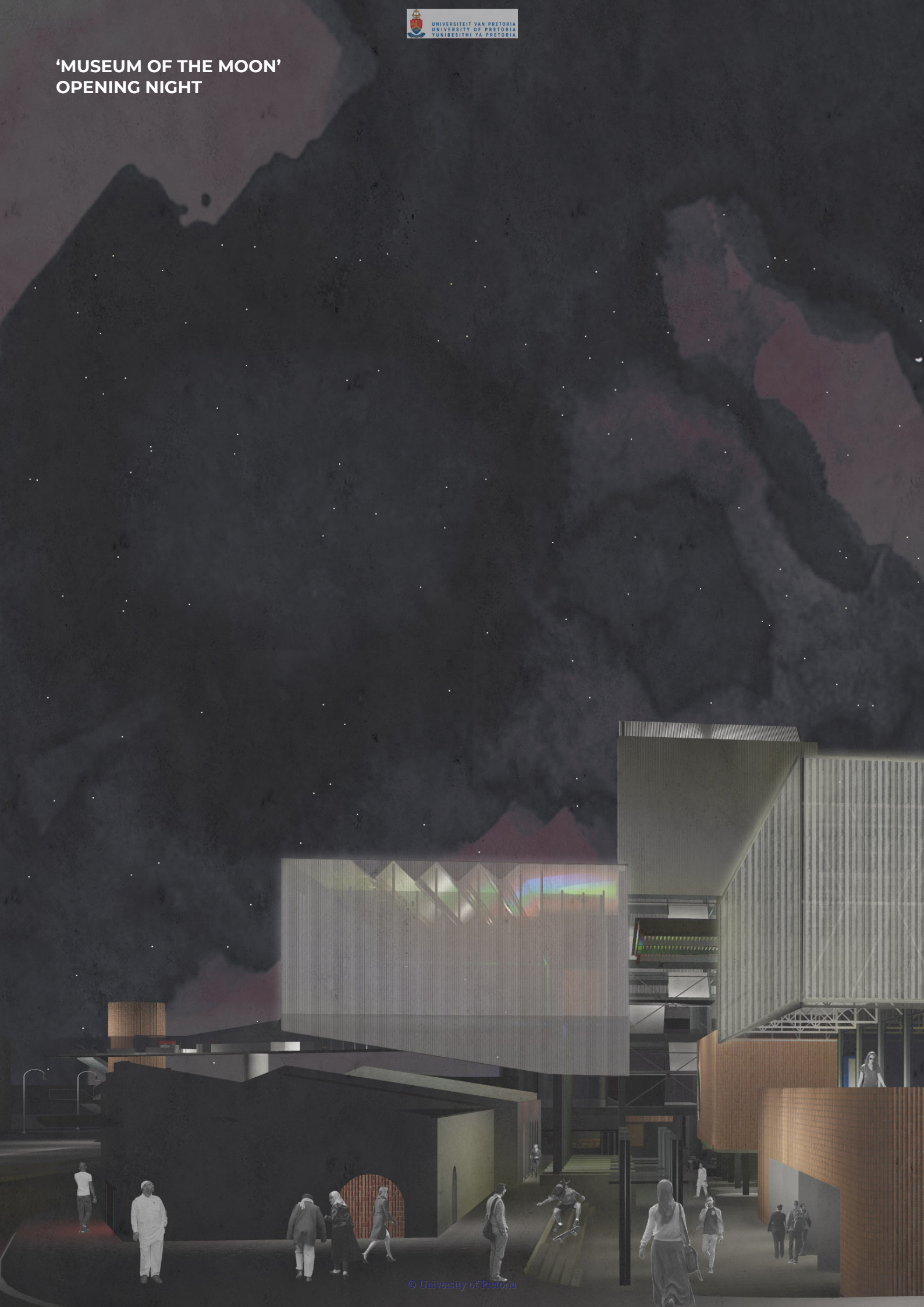








'MUSEUM OF THE MOON'
OPENING NIGHT





- 8.1 list of references
- 8.2 design summary
- 8.3 technical summary
- 8.4 academic paper



08

8.1 list of references

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8.2 design summary

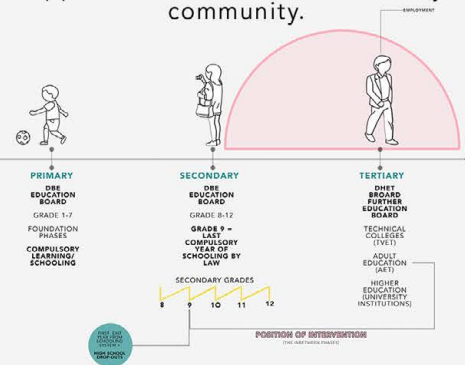
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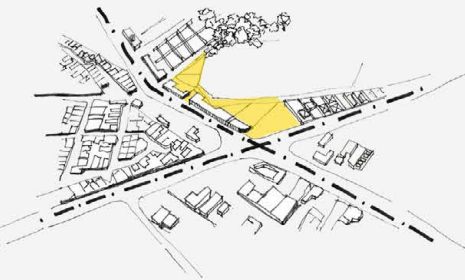
A SCHOOL FOR 'IN-BETWEENERS'

An in-between architectural typology to education and economy through reviewing the opportunities within the Westbury community.



SITE

The corner of Main Rd & Empire Rd, Westbury Johannesburg.



PROGRAM

An alternative education typology which adopts a learn-work philosophy in order to address context specific opportunities. (A school for drop-outs)

KEYWORDS

FET: Further education & Training (Grade 10 - 12)

AET: Adult Education & Training (3 - 4 Years)

Socio-economic: the interaction of social program with economic enablement, targeted at the student user.

Learn-Work: a typology adapted from the typical 'live-work' philosophy in which users experience a dual environment of learning and working (being employed).

INTRODUCTION

This dissertation, constituted from a juncture within our educational landscape, postulates the role of an educational facility and its resultant typology. It explores this alternative education as being both didactic and economic; as systems of exchange and emergence.



The site, a knot that ties two main arteries within the Johannesburg city fabric, perches itself on a corner. This corner sees the daily pendulum of commuters, greeting them as they depart and arrive. Beyond this, this site acts as the culmination point of an existing civic and institutional spine that braces Johannesburg CBD and Westbury.

This particular site of interaction with the Westbury community, a community notoriously associated with social ills, thus exists as a canvas for exploration of a new typology.

THE POTENTIAL OF EDUCATION

The opportunity of exploring education as a means of socio-economic enablement for a community such as this, lies in the potential of education in our post-apartheid landscape. This basic need exists as one of the highest expenditure items on the country's budget, with South Africa spending a higher proportion of its budget on public education than both the UK and US (Cohen, 2017).

Simultaneously, this spending is necessary in order to initiate the reparations on our unjust, scarred educational landscape.

These scars are particularly visible in communities who were disbarred from the most basic forms of this basic need.

THE POTENTIAL OF EDUCATION IN WESTBURY

Westbury, as a compartmentalised suburb of the Johannesburg Western Areas gives evidence of this scarification.

Mapping conducted of the Western Areas suburbs exemplifies the unjust

landscape of education in which we exist through the unavoidable imbalance in the ratio of primary to secondary school facilities.

This manifests itself statistically as 65% (11 of 17 schools) of the mapped schools being primary schools while only 24% (4 of the 17 schools) are secondary schools.

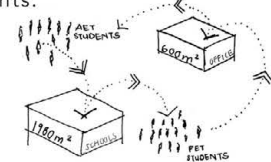
Compounding this however, is the interplay of school drop-outs - a phenomenon rife within the Westbury community.

The Department of Basic education pins Gauteng's drop out rate between Grades 10 and Matric at 40,5%, with the national average at 44,6%.

It is these school leavers that this dissertation programmatically seeks to address.

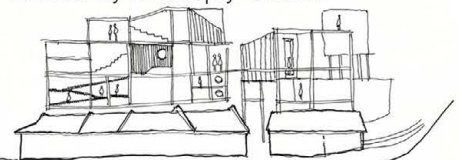
UNDERSTANDING THE PROGRAM

The architecture intends to programmatically house both an FET and AET school in order to bridge the in-between to leaving secondary school. Introducing education for both adults and teenagers allows opportunities for uniting the 'gap' of adult education within our context as it is also these adults that were possibly once school drop-outs. Housing a call-centre and further rentable office space within the program further seeks to explore the opportunity for employment of the students.



DESIGN INTENTIONS

The design intends to mediate context and institutional economy through absorbing the concept of a city in a building - a truly public space. It seeks to read as a printer's tray of communal life while proposing education as the visible binary between context and economic enablement - a springboard this community so deeply desires.



8.3 technical summary

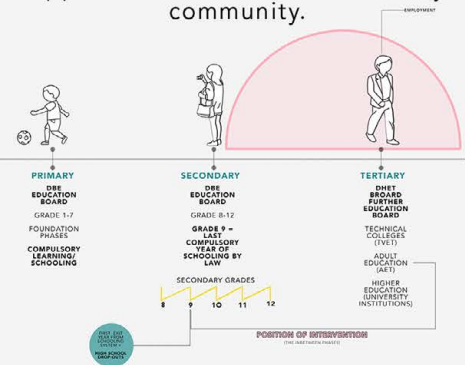
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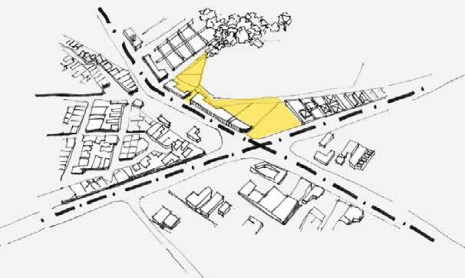
A SCHOOL FOR 'IN-BETWEENERS'

An in-between architectural typology to education and economy through reviewing the opportunities within the Westbury community.



SITE

The corner of Main Rd & Empire Rd, Westbury Johannesburg.



PROGRAM

An alternative education typology which adopts a learn-work philosophy in order to address context specific opportunities. (A school for drop-outs)

KEYWORDS

Polyvalent: Herman Hertzberger's expression of a multiplicity of use and autonomy on varying scales from individual to collective use of space.

Steel Framing: A structural framing system of steel columns and beams to provide a framed base for infill.

Materials: Term used to reference, in this case, the use of steel, polygal multiwall and light steel framing.

Learn-Work: a typology adapted from the typical 'live-work' philosophy in which users experience a dual environment of learning and working (being employed).

STUDY LEADER:
M. PIENAAR
FIELD OF STUDY:
HUMAN SETTLEMENTS & URBANISM (HSU)

INTRODUCTION

This dissertation, constituted from a juncture within our educational landscape, postulates the role of an educational facility and its resultant typology. It explores an alternative education as being both didactic and economic; as systems of exchange and emergence.

PROGRAM EXPRESSION

Education as the primary program implementation in the case of this exploration is manifested as the binary between context and community as well as community and economy. This takes form in implementing both a FET (TVET) college and an AET college in conjunction with a Digital Communications Centre. Introducing education for both adults and teenagers allows opportunities for uniting the 'gap' of adult education within our context. Furthermore, it seeks to provide economic enablement to each student through employing a learn-work program typology.

DESIGN INTENTION

The design intends to mediate context and institutional economy through absorbing the concept of a city in a building. This seeks to be achieved through strategies of 'Mat-building' (Smithson, 1974, p. 9) whereby the site absorbs the varying grains and scales of the surrounding context through formalizing these variations into a 6 by 6 meter grid and its incremental divisions. This grid is then expressed structurally and allows for freedom of infill to achieve the project's spatial intentions.

The design principles in particular are:

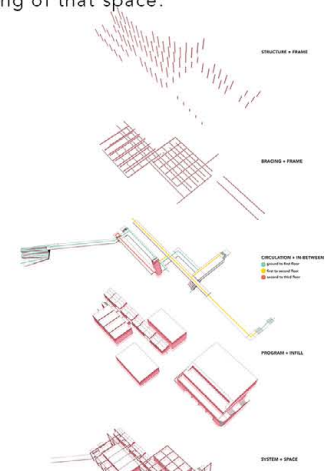
- Polyvalence
- Future Vertical Expansion
- Flexibility
- Alternative Building Methods
- Designing the In-between Space

TECHNICAL EXPRESSION

The architecture is expressed in its tectonic form as a frame and infill system where the frame reads as the structural ordering of the building. The infill is freed from the structure and is allowed to achieve the spatial intentions of the architecture through only being supported by and not dependant on the framing system. This thus enables the infill to change drastically over time.

The column and beam which remain visible throughout the structure's technification serve as pedagogic tools and spatial devices. A column marks a meeting point at its footing and an exposed beam marks a floor level while the infill systems intend to float in order to achieve a diversely levelled building with constant views between spaces on all levels.

It is in this notion that the in-between spaces become the moments of interaction between program, space and the physical making of that space.



STRUCTURE

The structure may be seen as three interactive and interdependent components – frame, infill and service. The frame is limited by the grid on its horizontal plane while vertically it remains unlimited as the intention is for the building to extend vertically over time. The frame therefore also needs to provide for future structural loading. The frame is supported by exposed cast in situ footings in order to extend their function as seating and meeting points.

The infill of the frame seeks not only to enclose space but also to define exterior space – that which remains in-between or unbuilt. The walls seek to physically express the notion of in-between though material selection while the floors, as an infill system, seek to achieve the most effective span with the prospect of further loading over time.

The building services are housed in ducts specific to their reticulation while the walls serve as further 'ducts' for the articulation of aspects such as lighting and mechanical equipment.

TECHNOLOGY + MATERIALS

Frame// Steel column and beam frame with only bolted connections to enable future reuse
Infill// Vertical: Composite wall comprised of 2 layers of Polygal Multiwall and Light Steel Framing (only bolted connections). Horizontal: Permanent shuttering, cast in situ concrete floor system.



ALEXIA KOLATSIS

A

A SCHOOL FOR 'IN-BETWEENERS'

An in-between architectural typology to education and economy through reviewing the opportunities within the Westbury community.



Fig. 01. Above; Westbury 'in-betweeners' - A Monday Morning at 11:00am. (Author, 2018)

INTRODUCTION

This dissertation, constituted from a juncture within our educational landscape, one that's particularly come to life under the banner of #FeesMustFall, postulates the role of an educational facility and its resultant typology. It explores an alternative education as being both didactic and economic; as systems of exchange and emergence. These educational and economic systems as informants of this alternative education are to be explored within the context of Westbury, Johannesburg.

This study will seek alternative methods of education and community integration through rethinking the architectural educational typology within the Westbury context. This typology aimed not only at an alternative, 'gap' education, also seeks to offer economic enablement within Westbury.

[STATEMENT]

Within the project context and the surrounding western suburbs, it becomes apparent that the provision of primary schools far exceeds secondary schools. This realization, arrived at

after an extensive mapping of each school within this area, manifests itself in 65% (11 of 17 schools) of the schools mapped being primary schools while only 24% (4 of 17 schools) are high schools. Combined schools make up 11% (2 of 17 schools) of the study, with these schools being primarily private schools.

Of that 24% of secondary schools, each school year, post grade 9 (the last compulsory schooling year by law) sees the departure of students from the schooling system before their matric obtainment. Therefore, not only is there an imbalance in high school facilities, these facilities are also plagued by drop-out rates that are influenced by the context which they are trying to support.

What becomes necessary to address is the provision of facilities for these school 'drop-outs' in order to ensure their future success. These facilities need to enable the learning these students still require while addressing the typology of educational facility architecture, as it is this typology that originally failed them. This need to address a

'gap' education within the Westbury context takes form in implementing an FET (TVET) college in conjunction with an AET college. The combination of these two schooling systems seeks to close all possible 'gaps' as it addresses the teenager who has just left high school as well as the adult who also had once left high school.

THE POTENTIAL OF EDUCATION

Among apartheid's directory of accreditations lies the legacy of legislation which has embedded racial and ethnic segregation within the landscape of education.

In 1994, at the time of political transition and unrest, there existed "19 different racially-based education departments dispensing an unequal system justified by an ideology of cultural and ethnic difference" (Christie, 2012, p. 8). Thus, the implications

of the current state of education within our context are historically hinged on the chaotic nature of the inception thereof - where historical patterns of provision, with racial preference, have provided the grounding for deep contours of inequality in education. It is these contours that have proven the most persistent to reshape in the post-apartheid era.

It was in 1996 when the first physical evidence of this inequality surfaced. The first mapping for schooling up to that point in time, as a unified system, showed that 24% of schools had no water within walking distance. Furthermore 13% had no toilet facilities at all while 69% had no learning materials. Of this schooling system 83% had no library facilities, compounded by 78% of schools having no school halls or assembly area (Christie, 2012, p. 9). The latter two figures hold the

heaviest weighting – schools provisioned primarily within outskirt areas and for people of colour within the city, were designed with the purpose of avoiding any possibility of congregation, in turn providing lesser education.

Over time, what seem like micro-interventions, have been implemented in order to initiate reparations within education – "provision of schooling has expanded, enrolments have increased, and teacher qualifications have improved" (Christie, 2012, p. 10). New system implementations for the democratization of education have "had to engage with historical patterns of spatial production" (Christie, 2012, p. 9). The gradual shift in system has seen an urban, black middle class that has gained access to historically white schools - former model 'C' schools.

Fig. 02. Below; FeesMustFall Protests, Union Buildings, Pretoria, 2016 (Author, 2016)



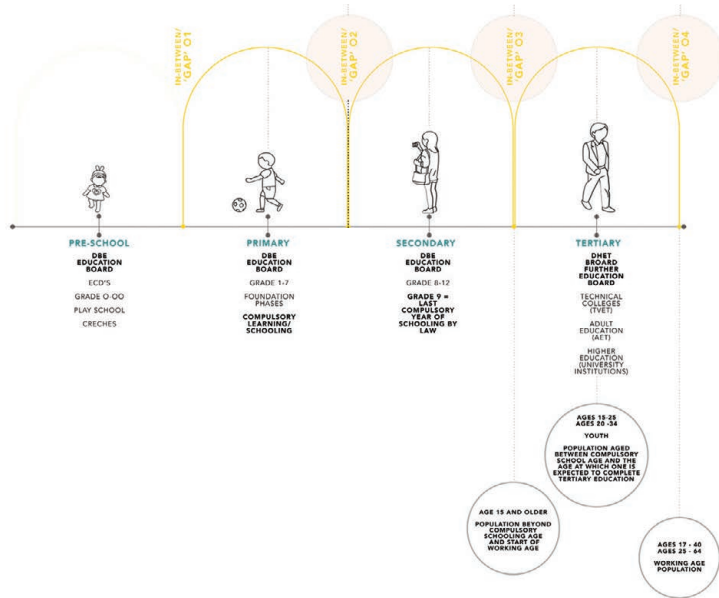


Fig. 03. Left; Identifying the 'gaps' in the South African Education system. This typology sits between Gap 03 and Gap 04 (Author, 2018)

Fig. 04. Below Left; Exploring architectural program and its resultant accommodation schedule (Author, 2018)

However, even in these schools, the racial relationships remain, and overall patterns of education performance remain racially skewed.

The implications of this skewed education system are still deeply prevalent. They are evidenced by retention rates as well as dropout rates recorded in high schools and universities. Nationally, a report released by Statistics South Africa (2016), places high school dropout rates at 44,6% of the population (Lehohla, 2016). In Gauteng, the rate is at 40,5%, just below the national average. Compounding this, in a report conducted by the Council on Higher Education: A proposal for undergraduate curriculum reform in South Africa, 2013, it is said that 55% of students across all institutions are estimated to never graduate (Council on Higher Education , 2013, p. 45).

These figures give evidence of the 'gaps' in our education system post compulsory school attendance. These sets of data cannot remain statistical norms, therefore it is herein that the potential of education lies.

In its existence as a fundamental human right, a space of learning is to be an environment for human enablement and social development. It is to be an environment for changing and testing society, in which both the ideal as well as the revolution are embodied. The ideal, personified by a tried and tested system's successes needs to be counteracted by the revolution in which that which prohibits development

is radically changed and tested in order to produce a new ideal. Therefore, the system needs to be in constant flux.

Currently, the only flux within our learning institutions is initiated through political activism – one of the most recent acts of which have manifested in the #FeesMustFall movement. It is in these moments of unrest that an institution often becomes tied between people and the government through the adoption of political agendas. The streets of the Johannesburg CBD, which directly string Westbury to Braamfontein, often become a canvas for these agendas and protests, showcasing the student's plight as public concern.

It becomes notable however, that it is only within these moments of unrest and protest that a whirlwind of policy change and reviews of access to education take place. Zuma's SONA (State of the Nation Address) of 2016 saw governments first response to the inaccessibility of tertiary education through implementing a zero per cent university fee increase (State of the Nation Adress , 2016). Furthermore, the 2017 SONA states fully subsidized higher education for financially disadvantaged students, excluding students within higher financial brackets.

This move by government has become paramount in reshaping the contours formed by historic inequality. These contours however are not only policy based. They manifest themselves spatially in the built forms that our houses of learning assume, as well as the urban fabric in which they sit.

This institutional language embodied particularly within universities speaks of a specific exclusivity.

Walls and fences which enclose educational campuses have no public interface with streets onto which they face and produce insular pockets throughout the urban fabric. The space surrounding these pockets is typified by an intimidating monumentality and prohibits any social interaction between the institution and its context. Therefore, an exploration needs to be made in which a mediation between institution and context may be reached through architecture as the tool for production of socially conscious space.

ARCHITECTURAL PROGRAM EXPLORATION AND INNOVATION

Education as the primary program implementation in the case of this exploration is manifested as the binary between context and community as well as community and economy. Education thus exists as the 'common ground' from which the community of Westbury may be enabled. This enablement, both educationally and economically takes form in implementing both a FET (TVET) college and an AET college in conjunction with a Digital Communications and Solutionist Centre.

The potential of the FET (TVET) college:

The FET college – or TVET college in its recent rethinking – facilitates the completion of a matric obtainment for those who exited the schooling system

before doing so. Above this, an FET college allows for the achievement of a post-matric qualification in the place of attending a university. Therefore, it is simultaneously a tertiary institution that is technically and vocationally based. However, it becomes limiting in the labelling as primarily technical and vocational as this form of education system trains students for employment above just obtaining a qualification.

These colleges provide training in careers from office administration, hospitality, and tourism to information technology and computer science. Primary healthcare, early childhood development and primary agriculture are also courses offered by these institutions. Furthermore, courses in the engineering field are available. These include electrical, industrial and mechanical engineering as well as motor mechanics.

Those who attend FET colleges learn through experience-based learning systems in the forms of apprenticeships and practical experience. This therefore makes these students highly employable and allows for them, through their schooling, to gain experience.

This potential in this type of program, owing to the courses it offers, lies in its ability to be fully integrated within existing networks in the suburb. The suburb already houses a number of mechanic and carpentry workshops for instance, while simultaneously there is a need for qualified ECD caretakers. The Digital Communications Centre also seeks those qualified in office and financial administration and thus there is the assurance of employment post qualification.

The potential of the AET college:

An AET college, a uniquely south African system, addresses the same form of education but for people in their adult lives. It is an education system that enables adults to finish or improve their basic education and aims to provide basic foundational learning tools, knowledge and skills.

AET courses and FET courses have evident overlaps and this is therefore the reason for implementing both learning forms in one program – learning resources as well as teacher resources have the potential of being shared.

O1 LECTURE HALL THEATRE GALLERY
PUBLIC / UNIVERSAL GATHERING SPACE TO GIVE BACK TO A COMMUNITY, RESTRICTED FROM GATHERING THROUGHOUT THEIR HISTORY AS A RESULT OF POLICY. THE MOST PUBLIC PIVOT TO THE DESIGN.

O2 BUSINESS CELLS
SMALL BUSINESS CELLS / COMMUNITY PRINTER'S TRAY (INFRASTRUCTURE) AS A SPRINGBOARD FOR THE WESTBURY COMMUNITY TO EXERCISE THEIR AGENCY WHILE PROVIDING SOCIO-ECONOMIC ENABLEMENT

O3 PEDESTRIAN BRIDGE LINK
THE PHYSICAL MANIFESTATION OF LINKING THE WESTBURY CELL BACK TO JOHANNESBURG CITY, SIMULTANEOUSLY LINKING THE RESIDENTS TO THIS PRECINCT WHILE EXPRESSING EDUCATION AS A BINARY.

O4 WORK SHOP EXHIBIT SPACE
WORKSHOPS AND EXHIBITION SPACE TO SHOWCASE PRODUCTS MADE BY THE HAND OF THE COMMUNITY. THESE PRODUCTS ARE AN EXPRESSION OF THE AGENCY AND CREATIVE PURSUIT OF THE COMMUNITY OF WESTBURY.

O5 LEARN WORK
REPLACING THE CONCEPT OF LIVE/WORK WITH LEARN/WORK. THE LEARN/WORK SPACE IS TO ALLOW FOR VIEWS ACROSS AND DOWN IN ORDER TO CREATE SYNERGY OF SPACE THROUGHOUT WHILE FORMING VISUAL RELATIONSHIPS.

O6 LIBRARY RAMP
LIBRARY AS PEDESTRIAN BRIDGE IN ORDER TO COMMUNICATE THE PHYSICAL MANIFESTATION OF LEARNING AS A BINDING MEDIUM BETWEEN SOCIAL AND ECONOMIC COMMUNITY LIFE WITHIN WESTBURY

O7 CLASS ROOM
CHALLENGING TYPOLOGICAL NORMS THAT ARE PRACTICED WITHIN WESTBURY SCHOOLS; INSULAR OBJECTS IN FIELDS OF GREEN. THE CLASSROOM IS TO ENFORCE THE SYNERGY BETWEEN ADULT LEARNING AND TEENAGER.

O8 OFFICE WORK LEARN
OFFICE SPACE AS A THIRD FACET TO TEENAGE AND ADULT LEARNING. THE OFFICE ENVIRONMENT / SOURCE OF EMPLOYMENT FOR THE STUDENTS OF BOTH AGE GROUPS IS TO ENCOURAGE WORKING AND LEARNING IN SHIFTS.

O9 INDIVIDUAL PODS
PERSONAL PODS/CELLS AS MULTI-PURPOSE SPACES TO HOUSE INDIVIDUALS IN NEED OF STUDY SPACES OR BUSINESS MEN IN NEED OF MEETING ROOMS TO ACCOMMODATE 2 OR 3 PEOPLE.

X
HIERARCHY OF SPACE ORGANIZATION
WORKSHOP
↑
BUSINESS CELLS
↑
PEDESTRIAN BRIDGE
↑
GATHER COMMUNAL
↓
CLASSROOM
↓
OFFICE
↓
PERSONAL PODS

XX
HIERARCHY OF PUBLIC TO PRIVATE SPACE
SENSITIVE
↑
ISOLATE
↑
SEMI-PUBLIC
← PROTECTED
PUBLIC
↓
GATHER EXPRESSIVE

Legend:
 - AET STUDENTS: 1600m² (1000m² + 600m²)
 - FET STUDENTS: 1700m²
 - OFFICES: 1000m²
 - BUSINESS CELLS: 1000m²
 - CLASSROOMS: 1000m²
 - WORKSHOP: 1000m²
 - PEDESTRIAN BRIDGE: 1000m²
 - GATHER COMMUNAL: 1000m²
 - CLASSROOM: 1000m²
 - OFFICE: 1000m²
 - PERSONAL PODS: 1000m²

	MON	TUES	WED	THURS	FRI	SAT
7:00 TO 8:00	ABET	FET	ABET	FET	ABET	
8:00 TO 9:00	ABET	FET	ABET	FET	ABET	
9:00 TO 10:00	ABET	FET	ABET	FET	ABET	
10:00 TO 11:00	ABET	FET	ABET	FET	ABET	
11:00 TO 12:00	ABET	FET	ABET	FET	ABET	
12:00 TO 13:00	ABET	FET	ABET	FET	ABET	
13:00 TO 14:00	ABET	FET	ABET	FET	ABET	
14:00 TO 15:00	ABET	FET	ABET	FET	ABET	
15:00 TO 16:00	ABET	FET	ABET	FET	ABET	
16:00 TO 17:00	ABET	FET	ABET	FET	ABET	
17:00 TO 18:00	ABET	FET	ABET	FET	ABET	

AET, above courses similar to those of the FET, includes training in:

- Small, Medium and Micro enterprises (SMMEs)
- Wholesale and retail
- Travel and tourism
- Ancillary health care
- Economic Management Sciences

The coexistence of both a workplace and place of learning seeks to ensure that the dropping out of students is prohibited as it is these students who will be employed within the Digital Communications centre. This multiplicity in architectural program seeks to ensure the initialization of an economic springboard for each student while diversifying the educational typology to include economy.

The introduction of economy further extends the building's lifespan through ensuring income generation and employment offers for the community at large. The building thus assumes the role of housing a 'learn-work' typology instead of the typical 'live-work' typology.

The program seeks to enable the project to become a truly social space that serves the community in its daily function while promoting the occurrence of education and economy exchanges in open, public space. As an extension of its publicity, the program pivots itself on a hall that can be defined and divided into a multiplicity of spaces of different sizes in order to house different events. The hall seeks to give back a public space for congregation within the suburb as it was this sentiment that historic policy prevented. The hall can be used as a series of 'classrooms', a place for assembly, a wedding or funeral, dance classes, a church congregation, workshop or a concert, perhaps even all of the above, simultaneously.

The hall therefore exists as the programmatic point of gravity which embodies the diverse learning experience. It is in Rem Koolhaas' / OMA's project, *The Educatorium at Utrecht*, 1997, that the same principles are explored. The building seeks to generate diverse forms of social encounters through the "overlap between programs and ... exchange between users of its diverse functions, whilst allowing a pragmatic and ... autonomous use of individual spaces" (Dovey & Dickson, 2002, p. 8).

Furthermore, *the Educatorium at Utrecht*, sees the architecture as a tool for programmatic innovation where the two entities cannot exist in isolation. The program depends on the articulation that the architecture provides in order for it to exist as the social, gravitational space of the university.

The method in which the architecture facilitates public space with a multiplicity of use is through its permeability. The spatial structure is deliberately designed in order to act as a network in which students and the public are free to discover the use and programming of spaces. This becomes an important principle in understanding the role of the architecture in programmatic exploration.

1. CONETXTUALIZATION OF STUDY – FRAMING PLACE

1.1 PLACE, SPACE AND SOCIAL JUSTICE IN SOUTH AFRICA

The production of space is a fundamental facet of humanity and exposes the influences of social relations in relativity to the spaces in which they occur. Both justices and injustices of society therefore become entities visible in space where territories are framed by their past existence as either desirable or undesirable by the Apartheid planning system.

This juxtaposition of desire is clearly showcased in contexts, socially far removed from one another, yet still responsible for weaving the same urban fabric. Power and influence through ultramodern architecture assimilated with wealth in suburbs such as Sandton makes for a powerful contrast against suburbs of the same nature as Westbury where space expresses the legacy of a political, unjust past.

Apartheid is rightly notorious for its racialization of all South African social transformation as well as the distribution of resources. These resources, not only physical, are particularly defined as having a social nature – schooling, universities, healthcare, and access to housing, civic and utilities – thus tying racialization not only to social transformation but also the place in which there is the lack thereof. In terms of the production of space, this may be understood as a "racialised political

economy of space or the economy of racialised space" (Christie, 2012, p. 3) wherein assets of our economy are distributed along unequal lines.

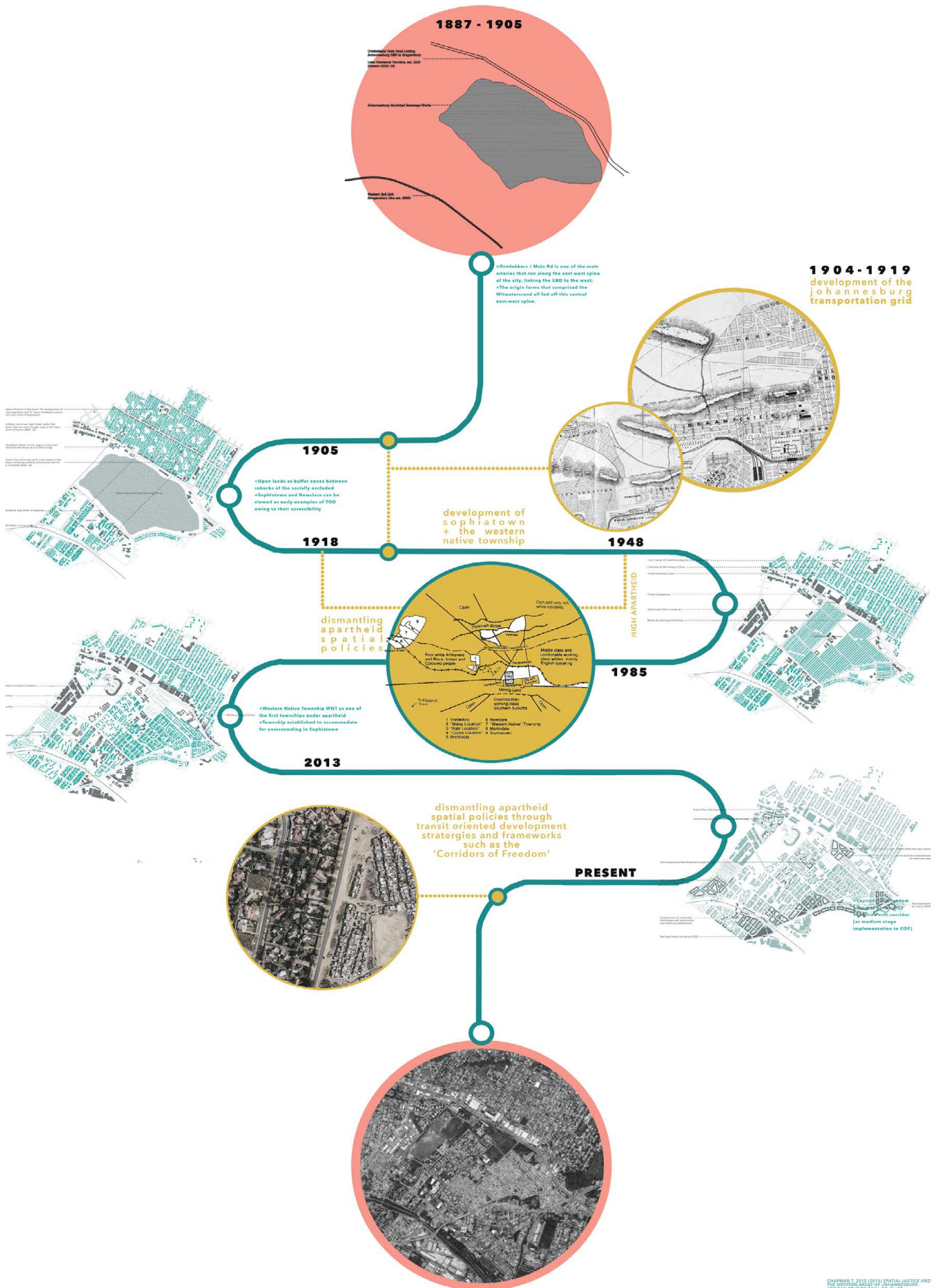
In the works of Edward W. Soja (Soja, 2010) and David Harvey (Harvey, 1976) the concept of spatial justice assimilates social justices in their spatial existence – social justice exists in space, attached to a particular place. The spatial and social, therefore cannot be detached. It is therefore pertinent within South Africa that this concept of spatial justice needs to be redressed.

In *Seeking Spatial Justice* (2010), Soja, makes explicit mention to South Africa as an urban fabric of 'unjust geography' (Soja, 2010). This notion becomes pertinent in the representation of Johannesburg as the principal apartheid city planning model (Figure); a manuscript of spatial injustices (Visser, 2000, p. 90).

Centuries of colonisation underpinned spatialised relations of power, which were extended and formalised by apartheid into a "hybrid sovereignty that tied race to place in structurally unequal ways" (Christie, 2012, p. 1). It is these configurations of power and prospect that have proven difficult to shift in post-apartheid education. Distinguished patterns of "access, provision and performance" (Christie, 2012, p. 1) are defined by this historical geography, albeit blurred as "race gives way to class in segments of the system (Christie, 2012, p. 2)." The continuum of these patterns with a potential to shift them is thus a major social justice issue for education policy in South Africa.

The purpose in analysing exchanges between society and space, owing to the tying of race to place through policy, thus lies in the ability to recognize social injustices, with the potentiality of formulating territorial policies targeted at dissolving injustice.

While current urban development plans, with the purpose of dissolving these injustices, are proving successful at creating a unified, macro city, through the implementation of Transit Corridors and development plans, it is at local scale, particularly in reference to the Western Areas of Johannesburg (Figure), that the legacy of this planning model continues to fulfil apartheid intentions.



These split dynamics between city and locale, as explored by Bremner in *Crime and the Emerging Landscape of post-apartheid Johannesburg* (1999) “are producing an increasingly disparate, separate city” (Bremner, 1999, p. 10). It remains evident, since the inception of the city formation that the intended un-built within the built, exist as ‘gaps’ to be filled by the “urban poor” (Landman & Ntombela, 2006, p. 5). These gaps, as are also evident within our schooling system, seek to be stitched to place in a new light.

These gaps however, “between the townships, the inner city and the suburb are widening” (Bremner, 1999, p. 10), limiting any chance of development of “shared space” (Bremner, 1999, p. 10) between people of the city, even within our democratic existence. This deeply spatial issue therefore gives opportunity for architectural innovation in addressing the conundrum of the ‘urban poor’: concentration of need within a ‘gap’ as a concentration of opportunities for development of a new typology that fills this ‘gap’.

It is this legacy of both social and spatial segregation that shape the current urban threads of the Western Areas of Johannesburg, with the suburbs of Sophiatown, Westbury and Newclare being evident of a continuum of spatial injustices .

This urban poor, representative of those in the Western Areas of Johannesburg, is bound by “a lack of means to achieve a decent level of social well-being” (Landman & Ntombela, 2006, p. 5) owing to the spatial injustices in which they are forced to exist. It is this same community that has limited access to economic opportunity “due to their lack of education and skills” (Landman & Ntombela, 2006, p. 5) thus rendering them bodies of spatial injustice within an ironic democracy.

1.2 WESTBURY’S EXISTENCE

The historical Western Areas neighbourhoods, throughout their existence have undergone a series of reformations, most of which occurred throughout the height of apartheid. There exist five pivotal stages of development, which frame these suburbs into existence and continue to influence their spatial being.

The five stages may be classified in terms of development (Figure), settlement (Figure), demolition (Figure), re-development (Figure), and post development (Figure) with each stage being significant of spatial changes to the built fabric.

1.2.1 DEVELOPMENT (1905 – 1918)

The 1913 Land Act confirmed the division of land, between settlers and African inhabitants, where ownership over 80% of the land was in the hands of white inhabitants (Christie, 2012, p. 5).

This division of land along racial lines is still evident in our current politically charged climate. Data regarding the exact divisions in an article published by CityPress shed light on the current imbalance of agricultural land evidenced in 73.3% percent (Crowley, 2017) of agricultural land as owned by whites . Black ownership however has increased. Majority (74% in KwaZulu-Natal and 52% in Limpopo) (Crowley, 2017) of the agricultural land in the most fertile provinces is under black ownership.

This further skew is evidenced in the attendance of school types – public and private – by both black and white students where public schools are mostly attended by students of colour (Lehohla, 2016, p. 54). Furthermore, this skew is continued into post-secondary education (Lehohla, 2016, p. 60).

In 1912, the African National Congress (ANC) was formed in response to the 1913 land ownership, in efforts to negotiate and hopefully negate this imbalance in land ownership, however, efforts were unsuccessful. In the ensuing period of time, segregation was entrenched in the social production of space. This draws pertinent similarities to our current debate on land ownership and the current efforts of the ANC in increasing black owned land as this historic segregation of space remains deeply entrenched.

1.2.2 SETTLEMENT (1918 – 1948)

In furthering the social and spatial injustices initiated in 1913, ‘Job Reservation’ legislation on the 1920’s secured employment for whites at the expense of other races. Industry and production in particular were secured for the colonisers. Thus, at the time of the coming into power of the Afrikaner

nationalist party in 1948, the apartheid ideology was easy to implement. The groundwork for “spatialised relations of power” (Christie, 2012, p. 7) and production had already been established. Space was already linked to race as well as access to opportunities were already linked to both race and place (Christie, 2012, p. 7).

It was within this period of division, on the vacant land of the sewerage works between Sophiatown and Newclare, that the first conceived township in Johannesburg was established; the Western Native Township (W.N.T).

What becomes important to note is that while officials closely regulated life within the W.N.T (Beinart, 1975), Sophiatown and Newclare existed organically. Sports fields, a community centre, library and hospital were all provisioned by government within W.N.T while such facilities were non-existent within Sophiatown. These facilities positioned strategically on the opposite flank to the Martindale strip were to be seen however, as a further extension of the ‘buffer’.

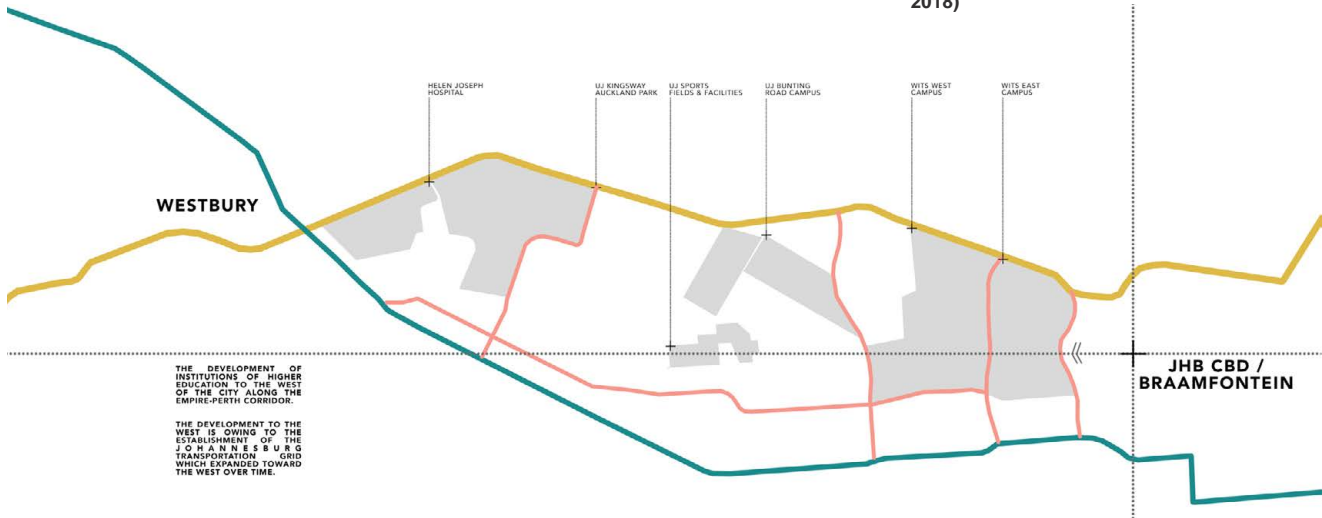
As the counterpoint to the W.N.T, Sophiatown’s emergence took form in corner shops and churches but larger facilities of civic function were not catered for as to ensure the prohibition of congregation (Chapman, 2015). This saw the emergence of the semi-symbiotic nature of the two suburbs - the W.N.T as Sophiatown’s ‘playground’.

Beyond this, Sophiatown saw no provision of educational facilities within its boundaries. This absence coupled with the lack of healthcare was therefore catered for within the W.N.T and surrounds. Owing to a lack of congregational spaces, especially typified by the building of schools without halls, the church assumed the role of fostering a collective identity and community. Within both Sophiatown and the W.N.T (now Westbury), the church still exists as the root of civic production and has, over time, forged strong bonds of community.

1.2.3 DEMOLITION (1948 – 1985)

After the demolition of Sophiatown under the Natives Resettlement Act of 1954, restructuring efforts began and the area was rezoned as a white only suburb.

Fig. 05. The civic spine along which Westbury is positioned owing to the development of the Johannesburg CBD to the West. (Author, 2018)



The Martindale strip within this restructuring was recreated in its original form, as an impermeable strip, a 'buffer zone', bounding the southern edge of the newly named, Triomf. This zone can be directly likened to the guidelines of the Group Areas Act, which state that areas of differing races and culture are to be divided by a buffer of at minimum 30m (Chapman, 2015) (Christopher, 1994).

Simultaneously however, this 'buffer' of industry and production, governed by white ownership offered the only source of employment to the people of the W.N.T. Thus, the Martindale strip not only assumed the role of 'buffer' but also 'bridge' as this seemingly controlling device existed as the only major node of economy. This lack of emergence in the economic sector is still evident today with the only alternative sources of economy being primarily corner shops and tuck-shop stalls.

1.2.4 RE-DEVELOPMENT (1985 – 1994)

In 1985 the plan for the urban renewal of the W.N.T was announced. This plan would see the complete redevelopment of the township into what is known today as Westbury (Lupton, 1992).

A new low-rise residential typology, which commenced in 1987, was implemented to house the residents of the township throughout the redevelopment phase. This typology, clusters of "three and four storey walk-ups set in large grassy blocks at the centre of the township"

(Chapman, 2015), became significant of what Trancik in Finding Lost Spaces: Theories of Urban Design (1986) would term 'lost space' defined by "undesirable urban areas, anti-spaces, [that make] no positive contribution to the surroundings or users" (Trancik, 1986) (Chapman, 2015). In essence, this social housing exists as a series of objects on a plane which house a community in disjuncture.

The new plan of Westbury sought to reinforce this idea of division across the entire southern edge of Main Road, mirroring the existing buffer, Martindale, on the road's northern edge on the Westbury side of the road. This was to be done through the building of both a primary and high school adjacent to the communal fields, strengthening the extents of the zone to approximately 200m between the residents of Sophiatown and Westbury.

Education, under the apartheid ideology was therefore implemented as a buffer. Apartheid spatial planning sought to utilize it as an exclusionary device in order to enforce the segregation between Westbury and Sophiatown. However, education in the light of this project seeks to exist as a method of inclusion.

1.2.5 POST-DEVELOPMENT (1994 - 2013)

The year 1994 welcomed a new life for South Africa and with it came the gradual untying of the Apartheid

planning legacies which had knotted the city into being. In an attempt to correct the injustices of the past, those that still plague our spatial landscape, the City of Johannesburg (COJ), in partnership with the Johannesburg Roads Agency (JRA) altered their approach to city planning with a post-apartheid lens. This change signified a shift from high-level planning to an implementable, realistic approach.

The Corridors of Freedom project (Restitching our city to create a new future, 2013) is one such implementation-based project in the present process of being implemented (City of Johannesburg, 2013). Of these, the most significant being the proposal of the Bus Rapid Transit (BRT) system named Rea Vaya, a typical implementation of Transit Oriented Development strategies.

Within this development, Westbury is situated at the junction of a major arterial through the city, at an intersection along the Empire-Perth corridor. Owing to this, the suburb was flagged for further re-development by the JDA in 2014. It is at this crossing of Empire Road and Main Road that the apex of Westbury is positioned, with this point being the first face of interaction with the Westbury community.

Furthermore, owing to the Land Areas Act where racial groups were shuffled across the landscape, Westbury has remained a predominantly coloured suburb. Throughout its existence this suburb has been plagued by the injustices of its historical legacy. These injustices include poverty, unemployment, crime

and social issues where education forms the base issue within each cycle.

(2013 – PRESENT)

The polarity of apartheid (mid- and post-regime) is further evidenced within systems of healthcare and schooling, as well as other civic infrastructure where the urban poor are subject to less adequate amenities. This urban poor, owing to the deep scar of spatial racial segregation is also primarily typified by the population of colour.

Schooling provision within the Western Areas, as evidenced from the mapping within the Corridors of Freedom proposal document is greatly skewed toward the provision of primary school infrastructure. This is further confirmed by personal mapping conducted, as previously referred, in which of the schools in the areas mapped, 65% (11 of 17 schools) are primary schools while only 24% (4 of 17 schools) are high schools. Bremner in *Johannesburg: One City, Colliding Worlds* (2004), explored the idea that post-apartheid Johannesburg exists as a city that “has replaced race-based seclusions with new boundaries, identities and enclosures” (Bremner, 2004) (Chapman, 2015). Compounding this, Murray, in *Taming the Disorderly City* (2010), reviews modern Johannesburg as an unwelcoming city, cruel to the jobless poor who are by default forced to reside in areas with inadequate infrastructure and services as well as bounded possibilities of income generation, issues that endlessly continue to plague neighbourhoods

throughout the city, such as Westbury.

WESTBURY – PHYSIOLOGICAL EXISTENCE

[Findings based on report by Neil Klug: (2016). *The more things change the more they stay the same: a case study of Westbury, Coronationville and Slovo Park informal settlement. Spatial Transformation through Transit-Oriented Development in Johannesburg Research Report Series*, South African Research Chair in Spatial Analysis and City Planning. Johannesburg: University of the Witwatersrand.]

The broadcasted slant of Westbury as a crime diseased island of shootings and drug use plagued by inequality and unemployment, although an accurate reflection, fails to simultaneously cover the tight-knitted, networked community of proud individuals who reside here. It is these same residents who congregate continuously to combat the ills by which they are defined.

This suburb’s legacy continues to impact identity politics and development, both economically and socially. Economic marginalisation as experienced through unemployment and criminality, coupled with social pathologies calls for the injection of socio-economic infrastructure within Westbury as to address sentiments of isolation, insularity and vulnerability between residents, despite the suburb’s physical proximity to the city.

Unemployment within Westbury is rife and is largely influenced by both “age and gender” (Klug, 2016) with the majority of women in particular remaining unemployed. This occurrence

attributes itself to a “lack of skills” (Klug, 2016) and qualified knowledge as well as “childcare constraints” (Klug, 2016) and duties of the household.

In the words of Klug in his report on Westbury conducted in 2016 – “Westbury is experiencing [both] a perceived and real downward spiral of unemployment, poverty, drug abuse and crime” (Klug, 2016). These characteristics may be ascribed to the aforementioned skills and education that the community lacks across all genders and ages compounded by the easy slope into the cycle of poverty most prevalent in a community plagued by unemployment. Education within the community although perceived to be effective rarely reaches tertiary level, thus limiting the employment of individuals in well-paying jobs.

However, in what the suburb lacks; “effective integrated response[s] to... social and economic challenges” (Klug, 2016), it makes up for in “high levels of community volunteerism” (Klug, 2016), efforts that succeed the high number of government and non-governmental social institutions attempts at restitution.

These efforts of volunteerism are realized in social organizations that attempt to heal the scars still apparent on the Westbury population’s psyche. These scars, as legacy of historical events, have resulted in “mistrust in the state and a feeling of disempowerment as a community” (Klug, 2016), which manifests itself in the forms of drug use and criminal acts.



Fig. 06. Social Housing stock - giving evidence of the way in which they sit as objects in space, creating 'antispaces' in the in-between. (Author, 2018)

Fig. 07. Identifying the changing grains and scales that read as urban fonts woven into a diverse urban typography. (Author, 2018)

Contrary to this are examples of those within the community who are determined to reach restitution. Klug (Klug, 2016) reports; "one business feeds over 70 children daily from their own resources as part of their contribution to the community" (Klug, 2016) while another "undertakes... voluntary drug counselling work in the area" (Klug, 2016) in attempt to eventually rid the community of its stigma's. Compounding these individual agents of change, are formal organizations that exist in the same capacity.

Although our context has undergone democratic transformation, this community seems to exist within its continuum of identity, "claiming a marginal space of identification" (Dannhauser, 2006). Restitution of the Westbury community is paramount as it becomes apparent that in reminiscing the stereotypical characters of the past, these same identities are being assumed in present: "the redeemed gangster, the ambitious youth who escapes the ghetto [and] the tireless worker for social upliftment" (Dannhauser, 2006).

WESTBURY – PHYSICAL EXISTENCE

During its 're-development' between 1985-1994, Westbury's urban fabric took form as a series of provisional housing typologies. This was coupled with the typical educational and industrial typologies where both education and industry were placed, as previously referred, on all edges of the suburb in order to act as 'buffers'.

Today, there exists five notable housing typologies that have been infilled and adapted over time. This palimpsestic nature of Westbury's residential fabric in particular gives the suburb a distinctiveness in that it reveals the ways in which the individual appropriates the provisional. It is in this sentiment that the residents within Westbury possess trivial governances over the production of their space, however, this is also limited by a lack of finances as previously reviewed.

Owing to its formation and reformation over time as well as its current nature of infill and appropriation, the formation of Westbury's urban and architectural interfaces remain a process in constant flux. This flux is further influenced by current developments. Westbury is being introduced to both infrastructural and architectural interventions.

These acupunctural interventions throughout the suburb, as triggered through Westbury being earmarked an important node of development through the C.O.F framework (City of Johannesburg, 2013), exist as the first instances of 'common ground' within the suburb. These nodes - the recently completed Westbury Pedestrian Bridge by Local Studio and the Westbury Clinic by Ntsika Architects – although the first instances of successful social infrastructure, have however struggled to have widespread impact due to the magnitude of issues in the defence.

As revealed through reviewing Westbury's physiological existence, these recent developments within

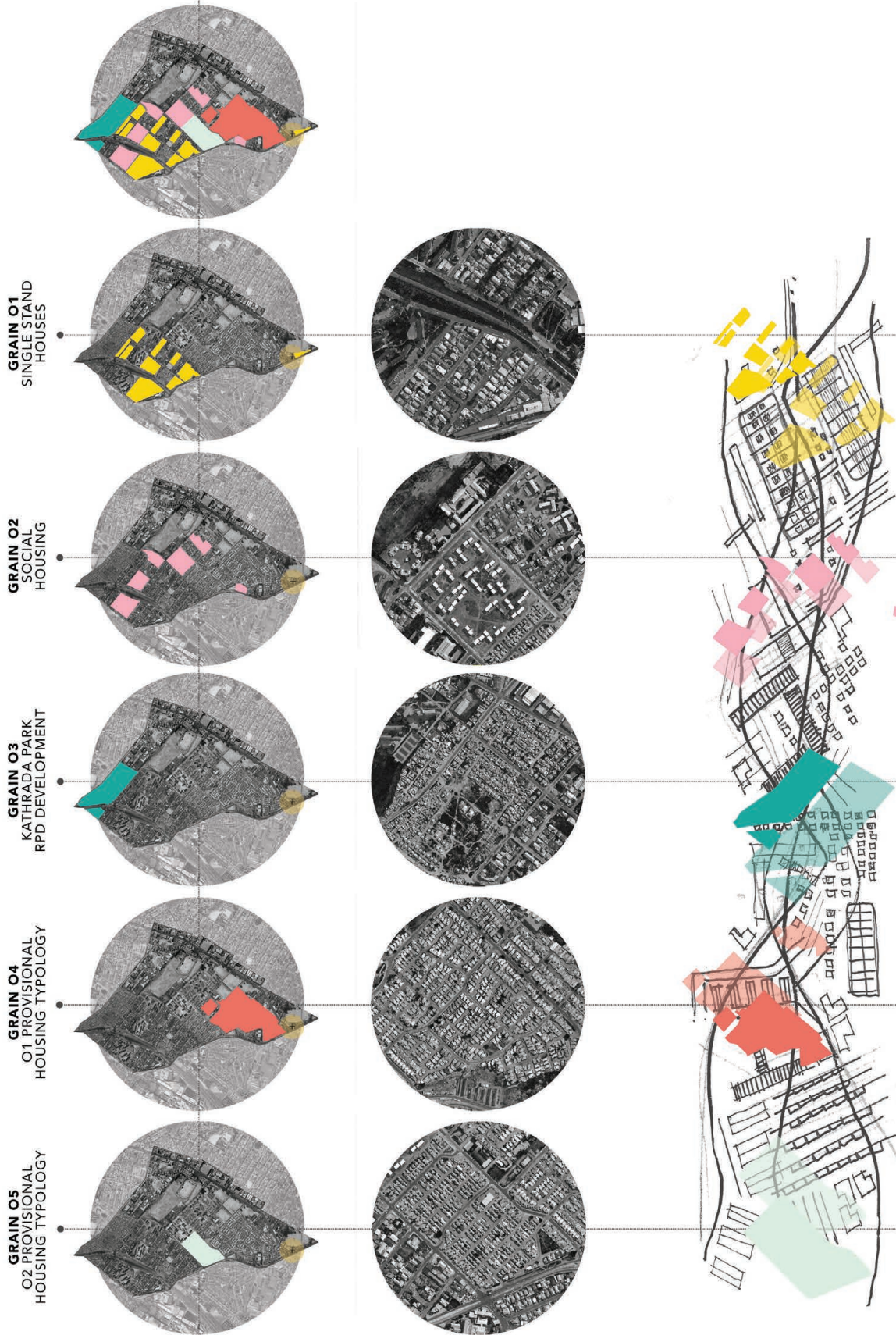
Westbury, in conjunction with the C.O.F implementation, have simply begun to change the surface of Westbury with little influence on its actual urban condition. This condition is manifested as an inland island characterised by a typography of urban fonts.

The residents of the suburb have become responsible for the infill of the 'gaps' both physically and socially. In a physical sense, each home owner has assumed the role of architect in densifying, appropriating and infilling the provisional, single stand house – building and narrating urban fonts over time. Densification occurs in extended families occupying single stand households while appropriation measures are evident in boundary walls as tuck-shop windows or the extension of the house's front to the street edge to accommodate a small business.

Although always small-scale owing to economic limitations, this series of infilling the in-between has come to define Westbury's urban fabric. Owing to its scale, there is an intricacy in the grain of the built, in juxtaposition to that which is leftover, with leftover spaces assuming different roles.

In the case of the single stand, provisional house typology, the leftover space functions as the outside space to each home - a back or front yard. It is however in the case of the "Corbusier-type clusters of three and four storey walk-ups set in large grassy blocks" (Chapman, 2015, p. 14) that the in-between space, although used as pathways,

**READING WESTBURY'S
GRAIN: A TYPOGRAPHY
OF URBAN FONTS**



remain unprogrammed, unappropriated and therefore undesirable.

It is these blocks of social housing which have proven least conducive to an individual's production and governance over the space in which they live. Ground floor tenants are granted the opportunity of additions to the in-between space – extending their ownership of the space, however, those in floors above ground are limited. Balconies are clothes lines and extensions of living spaces encouraging activation of the building facades and creating passive surveillance, however, this is the degree of adaptation that can occur.

Paramount to the grain of the suburb however, is the character of in-between space – streets, open spaces, desire lines and designated public areas. For the most part, Westbury's current landscape could be aptly described in terms of what Trancik, in his book *Finding Lost Spaces*, 1986, terms "lost space" (Trancik, 1986, p. 4). He reviews these types of spaces as "antispaces, [that make] no positive contribution to the surroundings or users..." (Trancik, 1986, p. 4). These 'antispaces' are further described as being both ill-defined and unable to "connect elements in a coherent way" ((Trancik, 1986, p. 4) as cited in (Chapman, 2015)).

It is in these 'antispaces' and interstitial moments where the residents of Westbury live. Owing to their lack of space coupled with levels of unemployment and low school enrolments of students, the in-between is always active. Sidewalks are filled with people that are watched from filled balconies while children and teenagers play soccer on the sports fields and in other open spaces. It is in this notion that the grain of Westbury and the essential inverse of that grain are important design informants for the purpose of this exploration.

It is through living in the in-between that the community has initiated a change in the unjust geography of their landscape by claiming and governing space through creating place. These actions are achieved through appropriation, adaptation and densification. It is these principles which are to become integral to the design of a typology, within this complex amalgamation of typologies.

Furthermore, owing to this varying urban fabric which reads as "a collage

of disjointed urban experiments" (Chapman, 2015, p. 24), it becomes necessary to formulate an architectural response on both scales of site and building that seeks to be the confluence between varying grains and scales of existing typologies. This weaving of the diverse urban fabric into a mat of urban informants may then achieve a level of physical unification as a possible 'common ground' to context and education.

TYING THE PHYSICAL AND PHYSIOLOGICAL THREADS [THROUGH STRATEGIES OF MAT-BUILDING]

The Architectural Digest of September 1974 held within it what was the first attempt of conceptualizing 'mat-building' in an article entitled "*How to recognise and read mat-building*" (Smithson, 1974, p. 9). Coined by Alison Smithson of Team 10, Mat-Building - a low rise, high density building type, circumscribed the concerns and interests of the Team 10 during the last decade and evolved as a "consequence of the debates within CIAM (Congres International d'Architecture Moderne) over principles of functional zoning" (Fores, 2011, p. 73).

It is essentially a critique on the functional separation of urban land uses in post-war Europe as well as the adoption of high-rise infrastructure during that same period. Mat-building, as a reaction, common to many Team 10 members, was against the orthodox zoning of cities into isolated functional areas as was also evident in the apartheid planning model, advocating that urbanism be more than an organization of buildings and activities into articulate zones with limited connectivity (Fores, 2011, p. 73). It is this inefficacy of land parcels and the monofunctionality of land use across urban blocks that also typify the South African city.

Rather than giving it definitive form, the mat is an instrument of planning that allows the urban environment to be infused and structured over time (Avermaete, 2005). As an effort to escape earlier CIAM dogmas, the mat typology initiated an awareness of the intricacy of the urban fabric, as evident in historic vernacular environments, but "lacking from mainstream Modernism" (Fores, 2011, p. 81). It is to this intricacy that David Viana in *African Cities: Towards a New Paradigm* (2009) also

refers. He explores that a new urban paradigm needs to be reached in which there is a mediation between patterns of regularity and segregation and the "plural configurations of the self-organised city" (Viana, 2009, p. 179) as is typical of the 'African' city and the historic vernacular environments by which Smithson is inspired.

Smithson, inspired particularly by the 'Kasbah' of vernacular cities, therefore describes the mat building form as the juxtaposition to the segregation evidenced in Modernism, instead seeing it as having the ability to "epitomize the anonymous collective..." (Smithson, 1974, p. 9) through the principles on which it is based.

This approach to spatial design is based largely on "interconnection, close knit patterns of association and possibilities for growth, diminution and change...", where the user of space "gains new freedoms of action" which in turn "enrich the fabric", knitted from these spaces (Smithson, 1974, p. 9). Mat-building thus seeks to dismantle and reframe program and composition, envisaging the architecture as a dynamic, flexible armature.

The mat is intended to provide flexibility in planning for changing program and function over time, remaining subject to revision and adaptation.

At both local and urban scale, perhaps it is the mat that is the mediating element – the 'chameleon'- that binds the segregated and collective. The new urban paradigm explored by Viana points to "flexible and regenerative morphologies" (Viana, 2009, p. 179) that are both sensitive and able to adapt to multi-contexts and contingencies – "a 'chameleonic' urbanism" (Viana, 2009, p. 180) that is based on the multiple. Therefore, the mat exists as a logical implementation in the weaving of an urban fabric that is not only chaotic but instead a legible tapestry.

Smithson argues that through implementing mat-building, "systems will have more than the usual three dimensions," (Smithson, 1974) – space, construction and user – they will include a fourth aspect, "a time dimension" (Smithson, 1974). Therefore, mat-architecture manifests as a highly interwoven structure with



Fig. 08. Left; The typical Kasbah as found in Islamic and Moroccan cities. This dense city formation is typified by winding streets and accessible rooftops. (Accessed online: <https://www.tripadvisor.com/LocationPhotoDirectLink> on 23.07.2018)

the ability to evolve in time and space in a potentially unlimited manner, adapting to multiple contingencies as they would occur (Such, 2011).

This attitude toward spatial exploration first became visible in the actualization of Berlin Free University (1963) designed by Candilis, Josic and Woods (Zhu, 2009, p. 889) – the ‘anti-monumental architects’ (Calabuig, Gomez, & Ramos, 2013). The Berlin Free University was to become a paradigmatic example of open-plan design through matching principles of mat-building exactly. Compounding this, early examples of these mat-like buildings stemmed from the Dutch Structuralists - Aldo Van Eyck and Herman Hertzberger .

A 2013 Architectural Review article, titled *Strategies of Mat-Building*, written by Calabuig, Gomez and Ramos reviews mat-building through outlining the definite strategies on which it is based, in a contemporary light. The basic hypothesis focuses on three compositional principles: “metrics, program[me] and place (Calabuig, Gomez, & Ramos, 2013, p. 84)” – the mat as the resulting composition following the weaving of these three threads. These principles, derived from reviewing projects such as the Berlin Free University give a matrix of the success of mat-building as both an urban and architectural design tool, even within urban contemporary life.

Furthermore, it reviews these principles as a form of design guidelines for future use - principles of spatial ordering and

exploration through response to place and program. These principles are as follows:

Owing to a mat-building being a large-scale, high-density, low-rise building type, the principle of metrics explores the building’s organization on an accurately modulated grid. At first glance, any mat-building’s ground floor plan constitutes a regular grid that extrapolates itself upward usually two or three stories and then planarly across the site. The Berlin Free University module is a “function of time” (Calabuig, Gomez, & Ramos, 2013) where 65,63 meters is a rough distance covered by a one-minute walk. Other mat-building precedents employ round-figure metrics which allow for ease of infill and space allocation (Calabuig, Gomez, & Ramos, 2013).

The compositional relation of program within mat-building is influenced by structuralist Claude-Levi Strauss whereby structuralism embraces social phenomena that are organized by the structure. The structure is therefore seen as a set of rules for “defining relationships and correspondences” (Calabuig, Gomez, & Ramos, 2013). In Berlin Free University, the moments of alternative teaching essentially occur in the common areas, the in-between spaces – interior walkways, courtyards and gentle ramps between the two levels of this distinctly horizontal structure. Formal teaching takes place beyond this threshold, in more privatised space.

House and city have an identical nature to which the mat-building offers a structural synthesis. The dialogue

with the urban place to which the mat-building belongs and contributes is the third principle common to the strategies of mat-building. The Berlin Free University, in its response to place demonstrates a consideration of an existing grain of the urban fabric. It draws this grain into its composition and although essentially isolated from the consolidated city, it may be seen to be a city within itself through its potential to spread and weave itself between the existing isolated buildings of Berlin.

Berlin Free University was conceptualised on the notion of being able to “adapt to its surrounding context” (Fores, 2011 , p. 81) through the exploration of what was termed a ‘groundscraper’. Despite the apparent complexity of its grid, the scheme demonstrates that the scale, grain and traces of the surrounding urban fabric are reinterpreted on the ground level of the project as an attempt to harmonize the project and neighbouring urban tissue.

The circulation of the mat corresponds to the existing network of pedestrian walkways on the site and is structured on an orthogonal double-level pedestrian grid. Relationships with context are further strengthened by the sequence of interrelated open spaces that permeate the entire plan.

The organization of the structure in terms of circulation and open space ensures abundant opportunities for communication and exchange between various parts of the mat without sacrificing their autonomy. Ample pedestrian

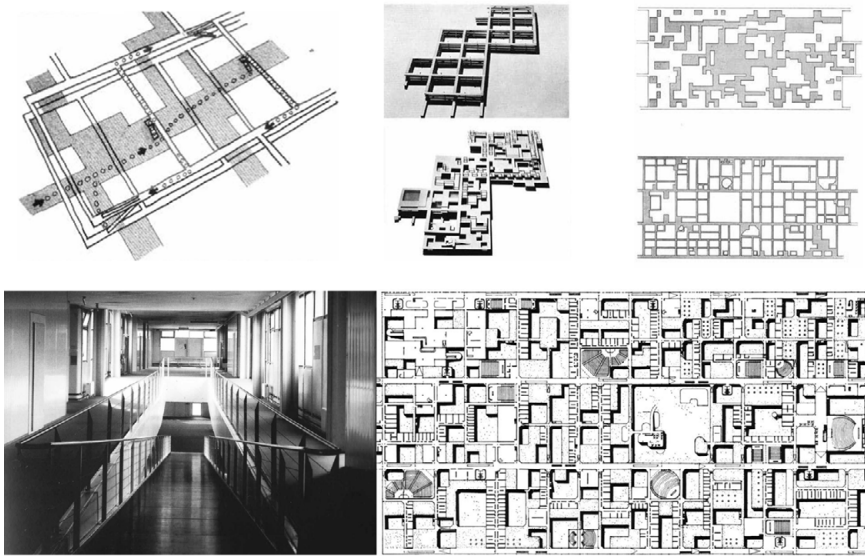


Fig. 09. Left; Berlin Free University, Candillis-Josic-Woods, 1963. A paradigmatic example of Mat-Building (Fores, J. J. (2011). Mat Urbanism: Growth and Change . Barcelona : Universitat Politecnica de Catalunya)

pathways and forms of access connect clusters of rooms into a double-layer mat that extends over the entire site.

The project's true success however lies in the juxtaposition of platforms, open spaces and covered pathways which generate a continuous and spatially diverse structure despite the horizontal stretch of the project plan. Each in-between moment in time is emphasized by the expression of the interstitial space as an important aspect to the education – learning in the in-between.

Furthermore, this project made it evident that the program characteristics of European universities in the 1960's made mat-building a suitable approach to architecture. This is evident in the operations of the universities of the time. Correspondence between departments is prioritized in opposition to the traditional separation of faculties within their own buildings (Calabuig, Gomez, & Ramos, 2013). It is this integrated typology which South African institutions of higher education failed to adopt – faculties perch themselves on plinths contributing little to the educational environment through severing relationships between departments.

The European approach “fosters informal pedagogy” (Calabuig, Gomez, & Ramos, 2013) based on spontaneous interactions between the students as well as teachers and researchers within the in-between spaces. It also caters for increasing student numbers and the expansion of curricula which in turn require flexible

structures which can be enlarged.

Contemporary Mat-building:

In current architectural discourse, mat-building has been revived under a term coined by Yuan Zhu, 2009, as ‘neo-mat-building’. This revival, although it contains slight alterations to the existing principles on which mat-building is founded, extrapolates the notion of an architectural armature to further extents. Zhu, in outlining the point from which neo-mat-building was conceptualized, describes mat-building as “legible, orthodox, and static” (Zhu, 2009, p. 890). This mat is then envisioned as being “disentangled and rewoven into a new state of flux and multi-layered complexity” (Zhu, 2009, p. 890) in the form of a neo-mat.

According to Hashim Sarkis (2001), owing to mat-building's resilient principles of design and construction, it lends itself to reiteration. It's concrete grounding answers “to the recurring calls for efficiency in land use, indeterminacy in size and shape, flexibility in building use, and mixture in program” (Sarkis, 2001). It is these problems that continue to preoccupy contemporary architecture that the original mat typology appropriately addresses.

In progression of mat-building's design informants, the neo-mat shifts from “individuals to collectives, from objects to fields and from static to dynamic” (Zhu, 2009, p. 890) through occupying the in-between to architecture and urbanism. However, it may be argued

that mat-building, even though orthodox, successfully started to mediate these scales through absorbing the urban into the architectural.

Occupying the realm of the in-between allows for these shifts as described by Zhu, as it defines varying grains and scales of development – a notion that is pertinent in trying to mediate the Westbury context in relation to the site. Furthermore Zhu, 2009, explicitly states the mats success, as being “conceived as in-between condition or a third place which overcomes time..., transpose[ing] insignificant insularities into meaningful complexities” (Zhu, 2009, p. 891).

Stan Allen , 2001, also recently recommended mat-building principles to meet challenges of contemporary architecture and urbanism. He reviews mat buildings as being characterised by “a shallow but dense section activated by ramps..., [with a] unifying large open roof, a site strategy that lets the city and the landscape flow through the project, a delicate interplay of repetition and variation and the incorporation of the time element as an active variable in urban architecture” (Allen, 2001).

It is these aspects of a mat-building's design in particular that make it an appropriate tool for contemporary design as it sees the architecture as a canvas for every future possibility. It therefore strips itself down to its essential components, in their most basic form, in order to achieve a longer lifespan – principles relative to contemporary theories of resilience and regenerative design.

Mat-building as an educational typology in practice:

This notion of flexibility of space as an expression of educational typology architecture is further explored by Hertzberger in *Space and Learning*, 2008. It is in his multiple projects, with specific reference to the *Centraal Beheer Apeldoorn* (1972) and his *Delft Montessori school* (1966), that the mat-building typology which favours the 'in-between' spaces is most evident.

The interstitial space as explored by Hertzberger, 2008, remains that which threads a sense of community throughout space – a notion that remains absent from the 'archetype' school building as evidenced in Westbury. This typology, as typified by "rows of classrooms and corridors running besides them" (Hertzberger, 2008, p. 41), is uncondusive to fostering

community as "corridors do not belong in schools" (Hertzberger, 2008, p. 42). It is this form of in-between space, the corridor that Hertzberger in his Montessori school addresses.

The corridor becomes extrapolated into congregational space through it assuming the role as a filtration of privacy from that which is most public, to that which is most private. He realizes the potential of the 'passage' as a "meeting place", "inspirational space", and an overflow catchment, "helping to solve the everlasting problem of cramped classrooms" (Hertzberger, 2008, p. 42).

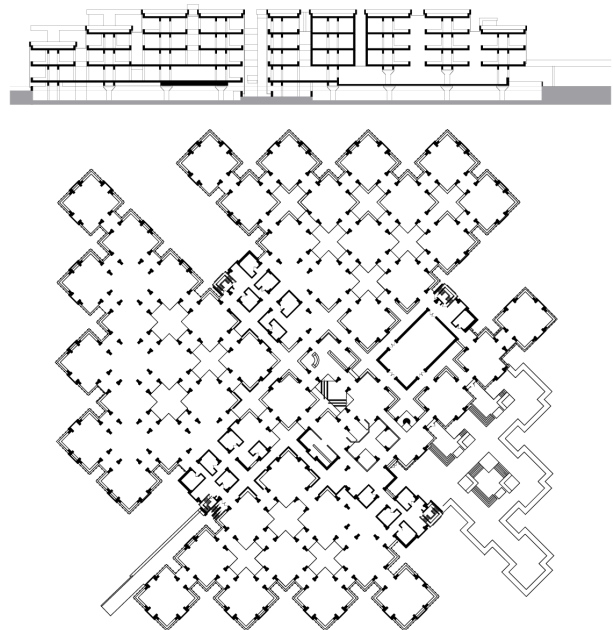
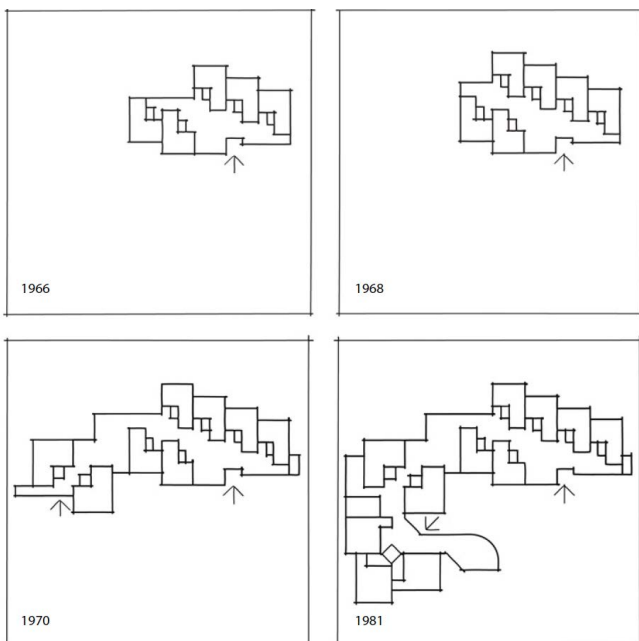
It is in this ordering of space that Hertzberger comes to conceptualize the "school as a micro-city" (Hertzberger, 2008, p. 112). In this 'micro-city' of learning, the school is further dissected as being a confluence of an extension

of home, the communal spaces as significant of the city plaza and the playground as the street, where the most private, the home, or in its other form, the classroom is distinguished by threshold.

It is through mat-building principles that a school or office environment is enabled to function as a micro-city. The grid unifies all segments of this functional microcosm into legible spaces with particular orders. It is this notion that this project, in designing a new architecture for an education typology seeks to test. Not only does the city, through the implementation of mat principles, bleed into the site but the architecture in its spatial ordering and definition comes to exemplify a city in itself. Its composition of interleading open spaces, connected by a public thread in the form of a "learning street" (Hertzberger, 2008, p. 113) which culminates at the home "recalls the public/

Fig. 10. Below Right; Herman Hertzberger's *Centraal Beheer Apeldoorn*, 1972 (Hertzberger, H. (2014), *Polyvalence: The Competence of Form and Space with Regard to Different Interpretations*. *Archit. Design*, 84: 106-113)

Fig. 11. Below Left; The incremental growth of Hertzberger's *Montessori School*, Delft, 1966 (Accessed online: <http://wrkshp.org/projects/>)



private divide, which in the urban context serves to define responsibilities” (Hertzberger, 2008, p. 113). Children play in the streets and parks – the in-between spaces – and return to their privacy, the ‘classroom’ when necessary.

As Hertzberger explains and explored in the Delft Montessori school, “within a building, this principle can in itself easily be interpreted by the use of soaring heights and daylight from above, these being primary means of reinforcing the association of the city” (Hertzberger, 2008, p. 127). This technique of imitating city through height and light simultaneously encourages density and therefore is applicable in concurrently ‘building city’ on an urban scale. It is also this level of urbanity that this new educational typology seeks to explore.

A further characteristic of functional city is the multiplicity of uses. In application to the micro-city of a learning environment, a street becomes the classroom while a classroom can become the public space depending on its spatial articulation. The current loss of faith in the classroom, as is typified by a four walled enclosure, is owing to a shift in thinking from it being more than the sole space for providing education.

However, the opposite extreme to enclosure - fluid space - is often more limiting. As Hertzberger explains, this approach to the abandonment of the classroom typology “fails to take account of the fact that such a blurring of identities means there is nothing left to exchange... Nothing has its own place anymore” (Hertzberger, 2008, p. 35). He further goes on to explore that fluid space produces ‘nomad’ users who cannot find orientation as it is not “just buildings that need structure; people too need a structured environment in which each person can feel at home (Hertzberger, 2008).

Therefore, multiplicity, or as Hertzberger in *Lessons for Students in Architecture*, 1991, terms it – polyvalence (Hertzberger, 1991) – comes through determining the enclosure while giving it space to breathe and adapt. Fluidity in design is essentially enabling space but not place and produces architecture that is generic. The making of place is introduced through definition and determinant design.

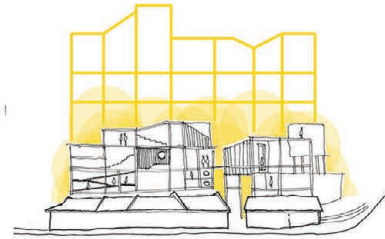
Hertzberger’s Centraal Beheer

POLYVALENCY / MULTIPLICITY

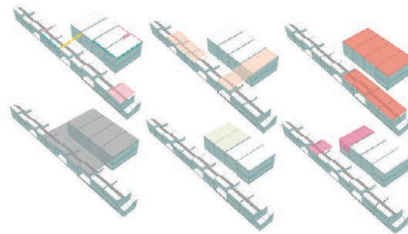
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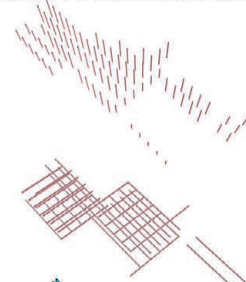
FUTURE EXPANSION



FLEXIBILITY



ALTERNATIVE BUILDING METHODS



IN-BETWEEN SPACE



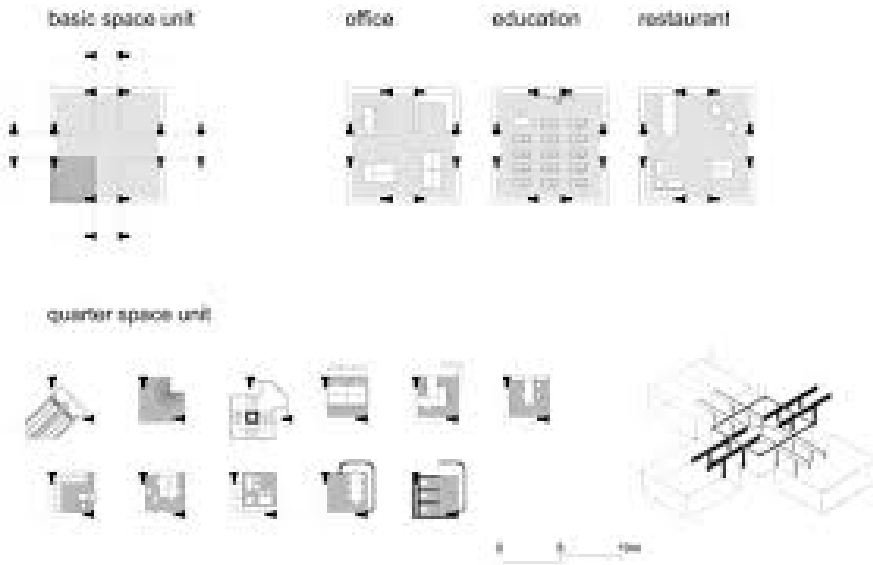


Fig. 12. Opposite Left; Design principles based on informants of site, program and theories of mat-building (Author, 2018)
Fig. 13. Left; The polyvalent nature of Hertzberger's module in the design of Centraal Beheer Apeldoorn (Hertzberger, H. (2014), Polyvalence: The Competence of Form and Space with Regard to Different Interpretations. *Archit. Design*, 84: 106-113)

Apeldoorn complex, 1972, employs these basic principles of multiplicity. The plan's intention maximises human-interaction and dialogue through exploring the module which is then woven into a mat. This mat varies between open, interstitial space and designated office space. The structure however, as typical of its time, is fairly rigid. It limits adaptability to a 9 by 9-meter module with no opportunity for expansion. Furniture is therefore the element responsible for adaptability. It is in this case that the design is perhaps too determinant.

The concept of 'polyvalence' or 'polyvalent space' is directly applicable to spaces that can "generate specific responses to each new situation" (Hertzberger, *Space and Learning: Lessons in Architecture*, 2008, p. 109). Freedom and reduction of generic space are therefore in contrast to concentration and addition as tools for place-making in order to "increase the spatial quality of polyvalence" (Hertzberger, 2008, p. 113).

Within the project context, it becomes necessary to make 'place' as Westbury is typical of a community that has been deprived of place, while accustomed to space, owing to the historically unjust landscape in which they exist.

The mat approach thus offers this sense of structuring to space as it inherently implies an infill of structure, with this infill defining space and threshold. This is the approach that the design of a new educational structure assumes, where each definition of space has a particular identity but owing to its

definition allows for a level of multiplicity.

C O N C L U S I O N

This dissertation, constituted from a juncture within our educational landscape, one that's particularly come to life under the banner of #FeesMustFall, postulates the role of an educational facility and its resultant typology as being a product of community and existing community networks. In doing this, it seeks to explore education as a tool for changing the landscape of a community that remains scarred by an unjust production of space, without the ability to make place.

The form of educational program implemented, through being both didactic and economic, makes architecture a vehicle into a different sphere of life for the people of Westbury as it is architecture that is the physical binary of this program within its context.

The architecture, through adopting mat-building principles is therefore an armature of change. It enables program and public space through addressing existing programmatic and contextual 'gaps', in the search of infilling these spaces.

Therefore, this exploration seeks alternative methods of education and community integration through rethinking the architectural educational typology within the Westbury context. This architectural typology embodies the principles of: polyvalence, future expansion, flexibility and in-between space.

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