

-----[VII]----- DESIGN DEVELOPMENT



DESIGN DEVELOPMENT

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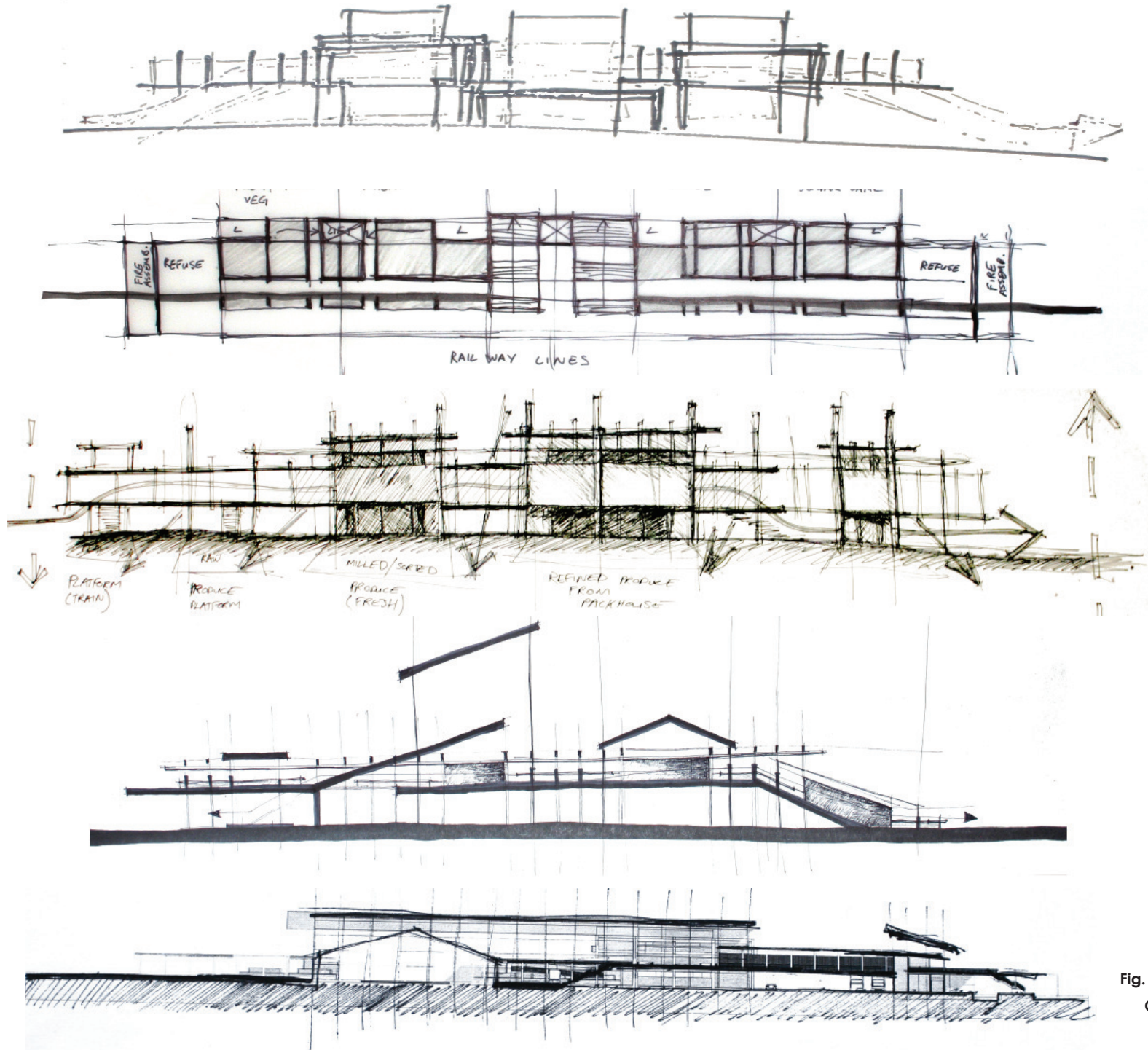


Fig. 7.1 Evolution of Elevational Composition (Author, 2017)

DESIGN DEVELOPMENT METHODOLOGY

The theoretical argument formed the outline and intentions encapsulated by the concept. The design development extended these theoretical approaches with legibility, complexity and cross-programming became the focus of the design intentions. The design methodology was aimed at iterating various design solutions that addressed these issues.

The existing context was measured according to the method prescribed by Evans and Schiller (2006) and forms the baseline figure that would be compared to the final design solution. The comparison of these figures would show the impact of the intervention on the Urban Fabric and indicate the appropriateness of the design as a large urban intervention.

The design intentions were distilled into a series of diagrammatic sketches. These sketches were utilized as 2-dimensional compositions that could be retraced and re-configured and quickly test the viability of a solution. Frequently, these diagrammatic sketches would purposefully be left without annotations in order to retain the integrity of a pure composition that did not have the restraints of, for instance, a floor plan. This allows the designer to iterate specific elements of the design in isolation without the need to consider the entire complexity of the scheme in each attempt to explore a solution.

At various stages these sketches were tested against the context, to ensure that they were suited to the practical conditions of the site. Sketches were often retraced with multiple drawings layered underneath to extract the essence of the drawings that lied underneath. This synthesised multiple intentions into a single sketch without sacrificing the overall composition.

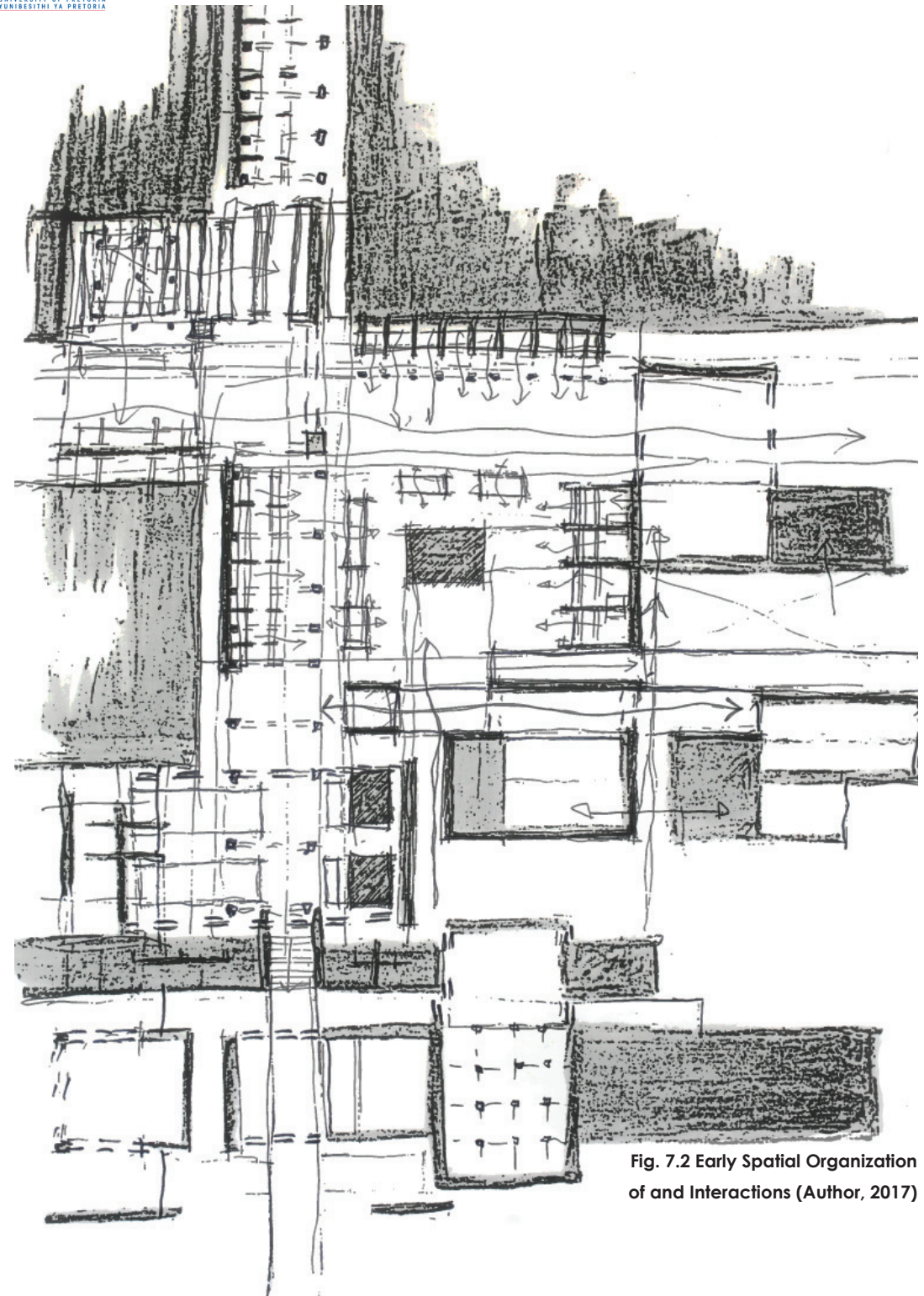


Fig. 7.2 Early Spatial Organization of and Interactions (Author, 2017)

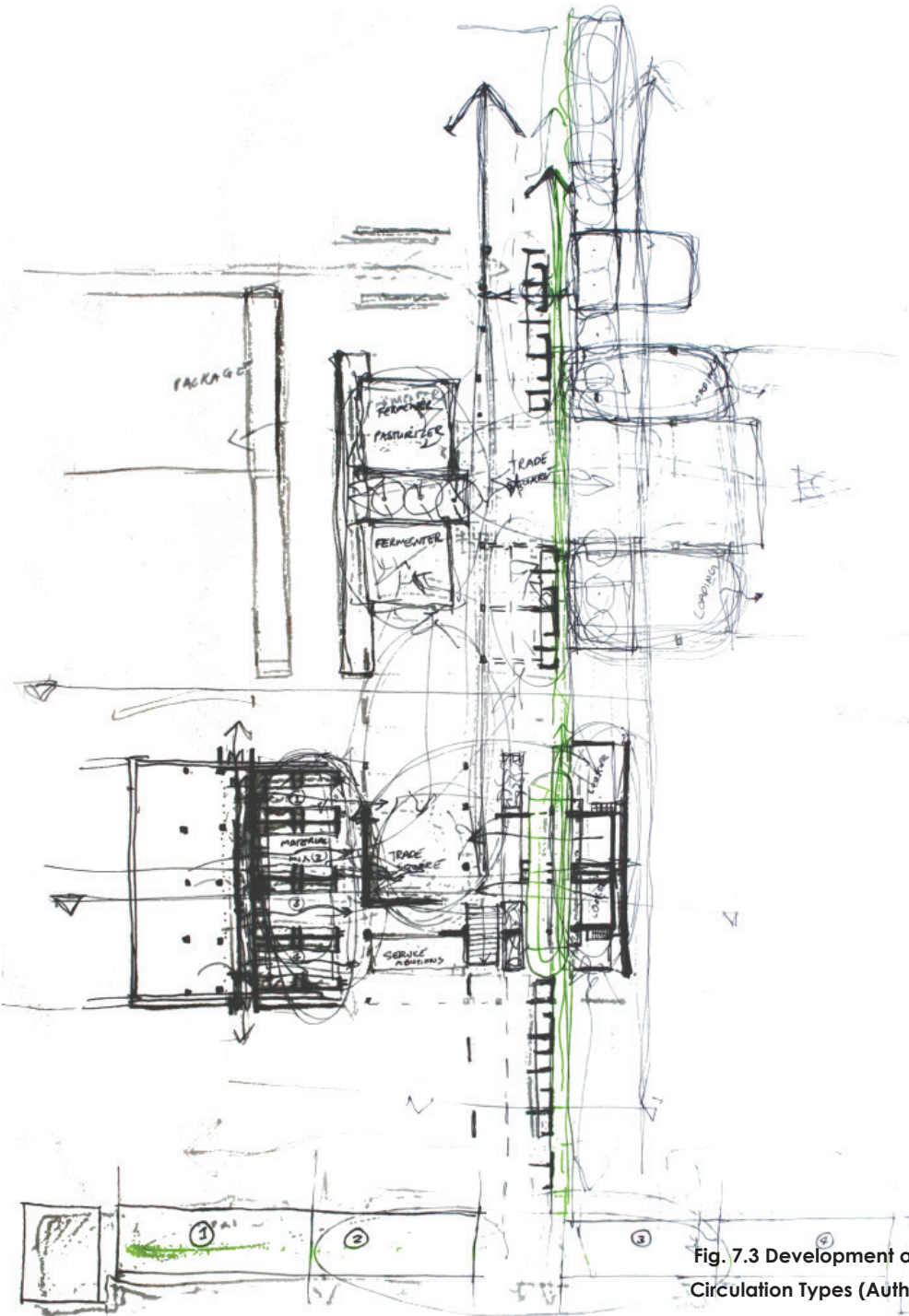


Fig. 7.3 Development of Distinct Circulation Types (Author, 2017)

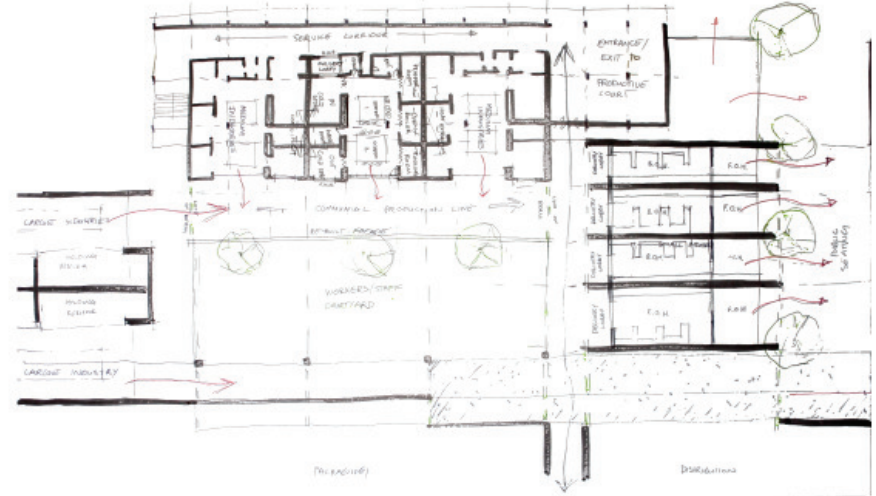


Fig. 7.4 Productive court yard allows for programmatic collisions between routes and functions (Author, 2017)

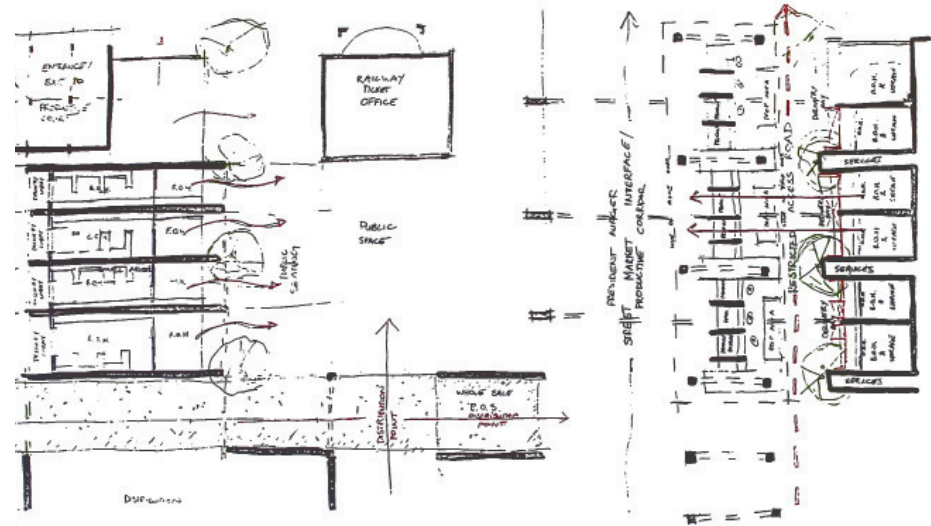
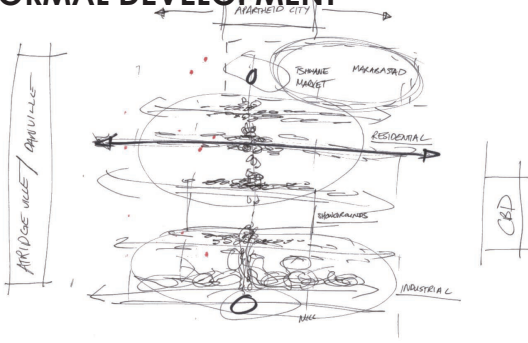
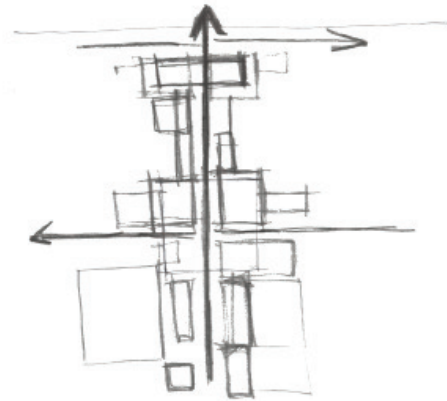


Fig. 7.5 Grouping of Functions and Separation of Circulation Paths (Author, 2017)

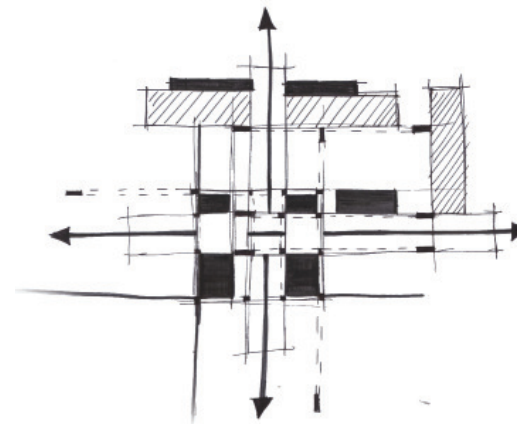
DESIGN MORPHOLOGY FORMAL DEVELOPMENT



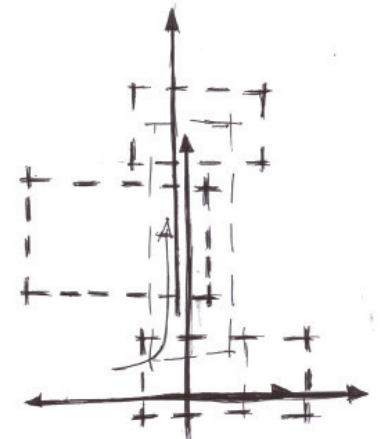
INTENTIONS AND PROGRAMS



EXISTING FIGURES



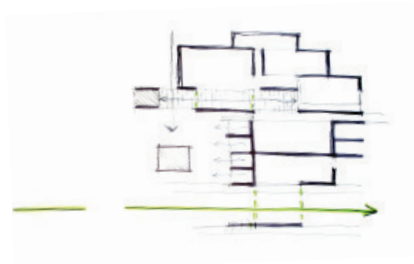
ACTIVE CONTRAST



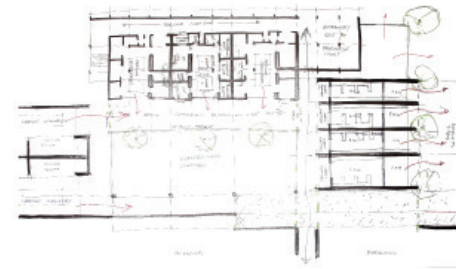
EXISTING GROUPING



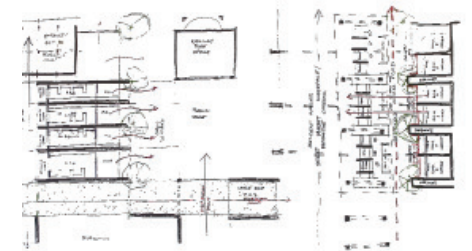
ZOOMING IN: INSERTIVE INTERACTIONS



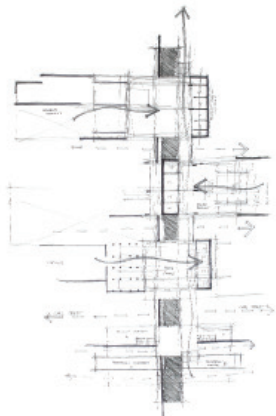
SITE SPECIFIC TEST



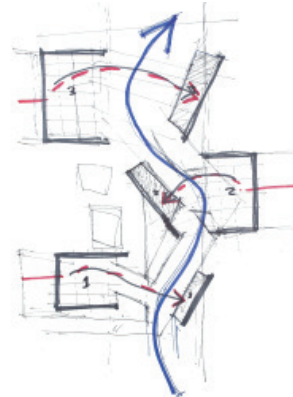
PRODUCTIVE COURTYARDS



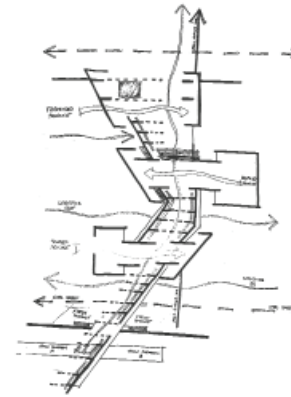
DEFINING RELATIONSHIPS



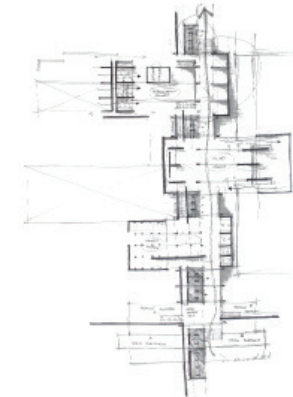
INFORMAL BINDING



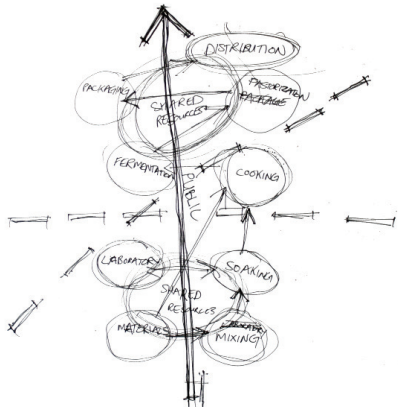
RE-DEFINE PRODUCTIVE ROUTE



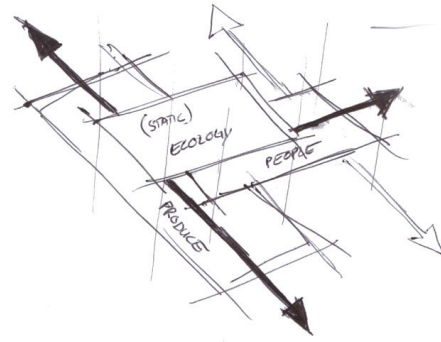
RE-DEFINE PEDESTRIAN ROUTE



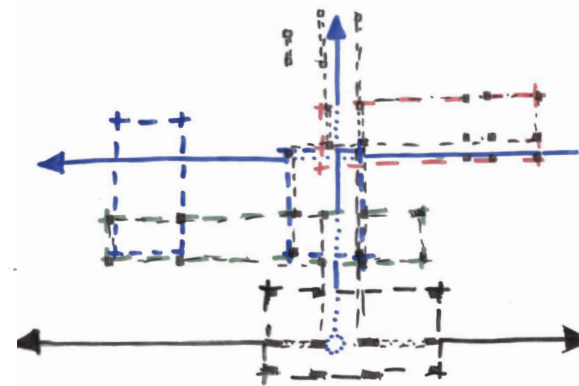
RESET JUNCTIONS



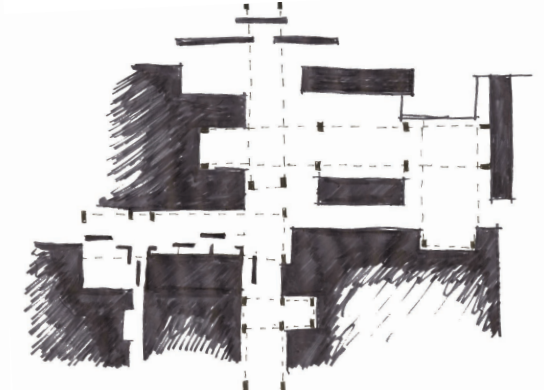
INSERTED PROGRAM



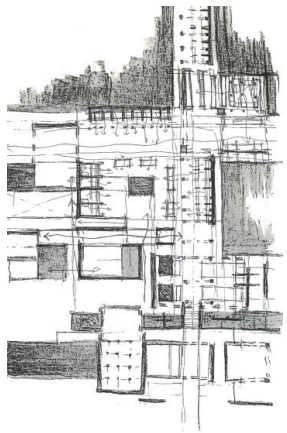
INTERVENTION



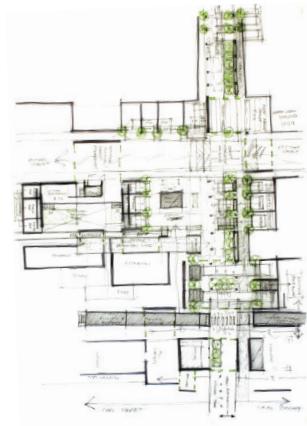
DEFINING THE MARKET(S)



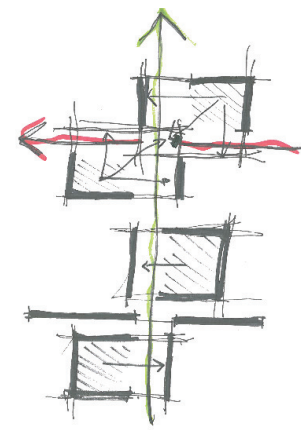
EXTENDING FUNCTIONS/FIGURES



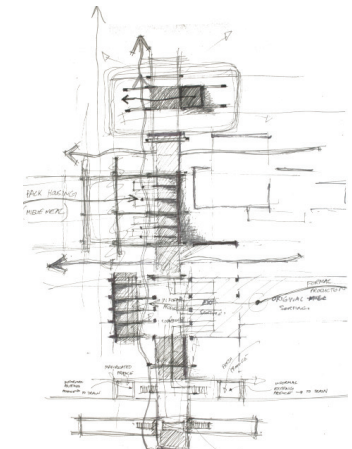
ZOOMING OUT: SITE CONTRAST



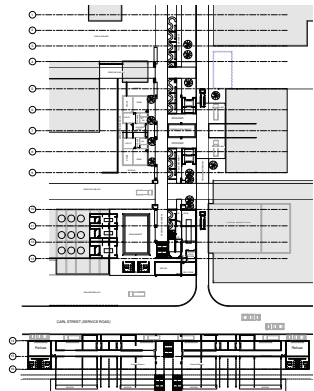
SITE ORGANIZATION



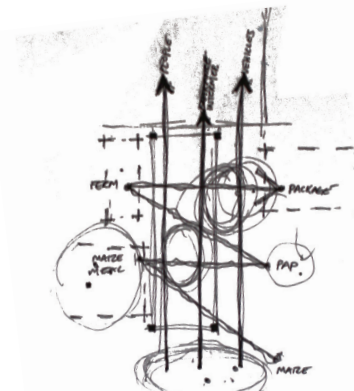
SIMPLIFYING: PRODUCTIVE ROUTE



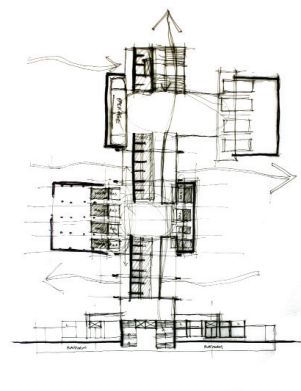
EXTENDING FUNCTIONS



SYNTHESISING INTENTIONS



SIMPLIFYING PARTI



DISENTANGLE THE COMPOSITION

Fig 7.6 Development Sketch Plans of Spatial and Organization and Composition (Author, 2017)

DESIGN MORPHOLOGY FORMAL DEVELOPMENT

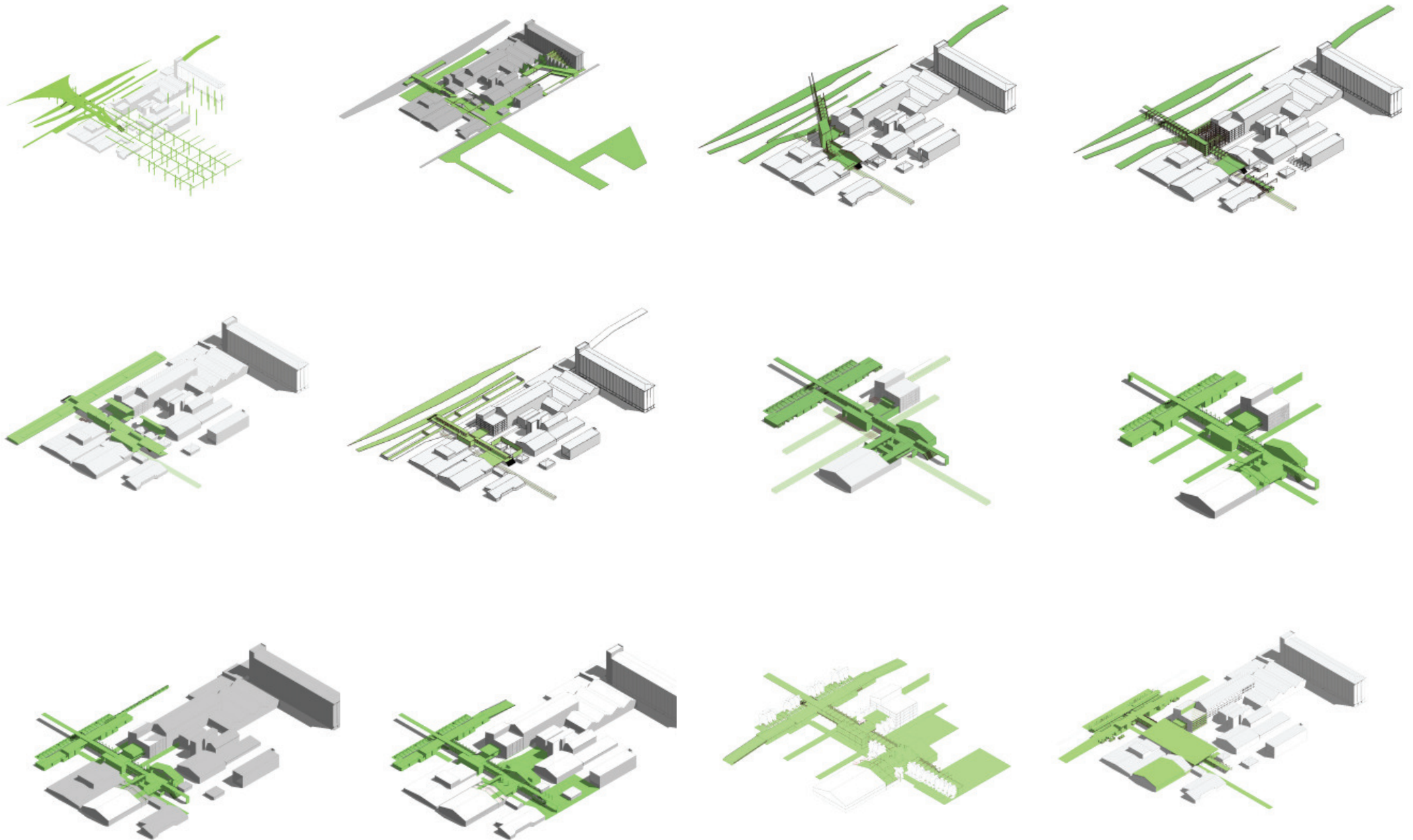




Fig 7.7 Spatial Development Models
(Author, 2017)

SKETCH PLANS

Bernard Tschumi proposes cross-programming as a means to activate in-between spaces and uses it to reclaim lost space. I utilize this method in heavily programming existing nodes of activity starting at the train station, that is both an industrial and public transport node, the sorting facility, and the Packhouse and introduce a new semi formalized productive programme in between. The production of mague a traditional African drink is exemplified. Whilst the public movement is unhindered, production flows out from the existing structures and engages the public. The train station facilitates the existing informal traders and incorporates small de-husking industries. Fresh maize is then crated and transported by train to Shoshonguve, Atteridgeville and throughout Tshwane. The unsold produce moves then moves to the grain market, where it is milled and mixed into a grain mixture as is required by the client.

From the grain market the maize meal is then distributed throughout the street market and also used to cook mielie pap, an addition to any dish prepared as well as the base for Mague. In the repurposed historic residential buildings water is added to stale mielie pap that is then allowed to ferment to make mague. From there on the Mague can be packaged at the pack housing facility and transported up the productive corridor where it ultimately reaches the Tshwane Market.

This productive programmatic example allows for both formal and informal industries to attach to an infrastructure that mutually benefits both sides of the spectrum. Architecturally the multitude of programmatic opportunities is arranged around circulation routes and courtyards as a roof is draped over the processes. The Structure supporting the roof

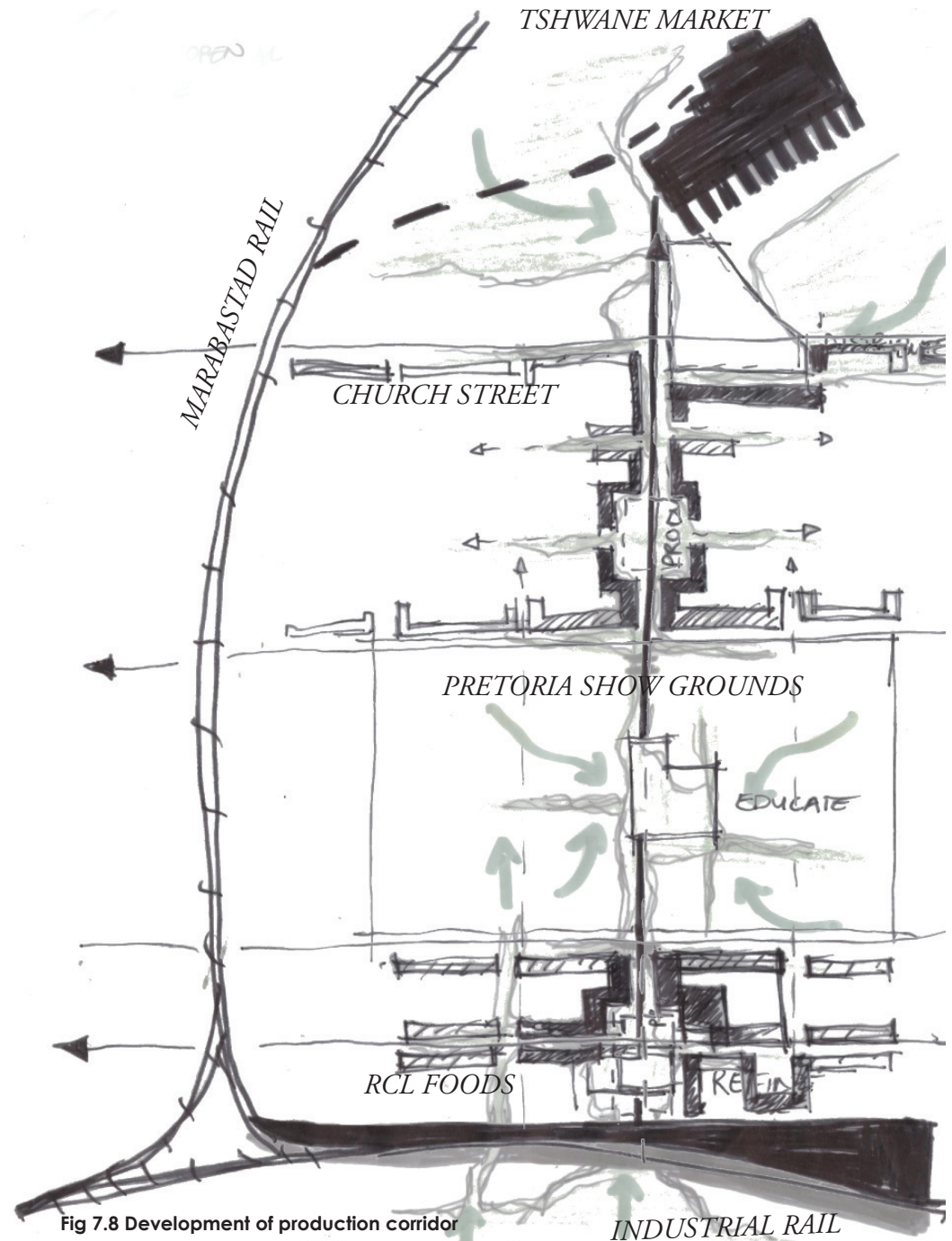


Fig 7.8 Development of production corridor
(Author, 2017)

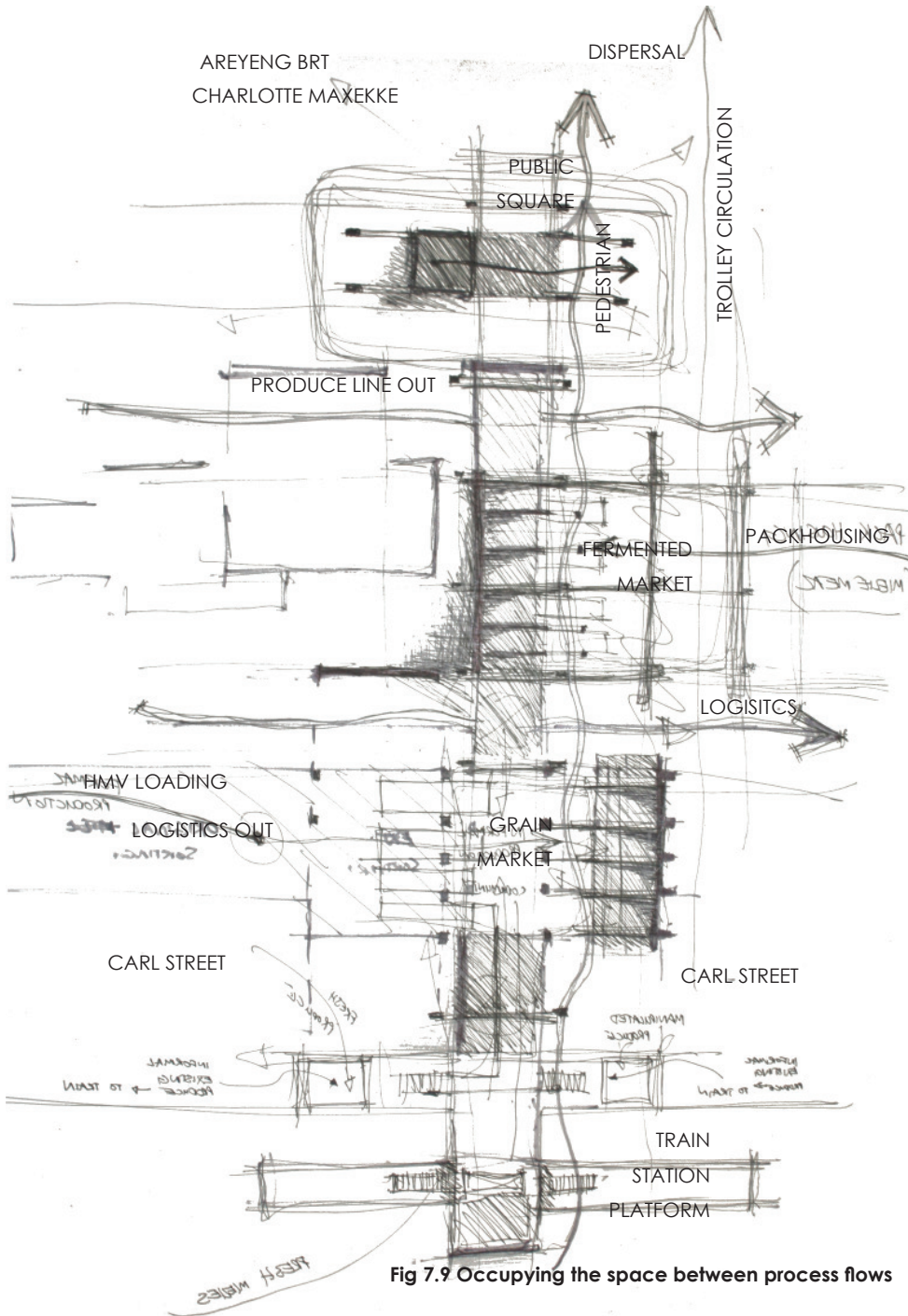


Fig 7.9 Occupying the space between process flows

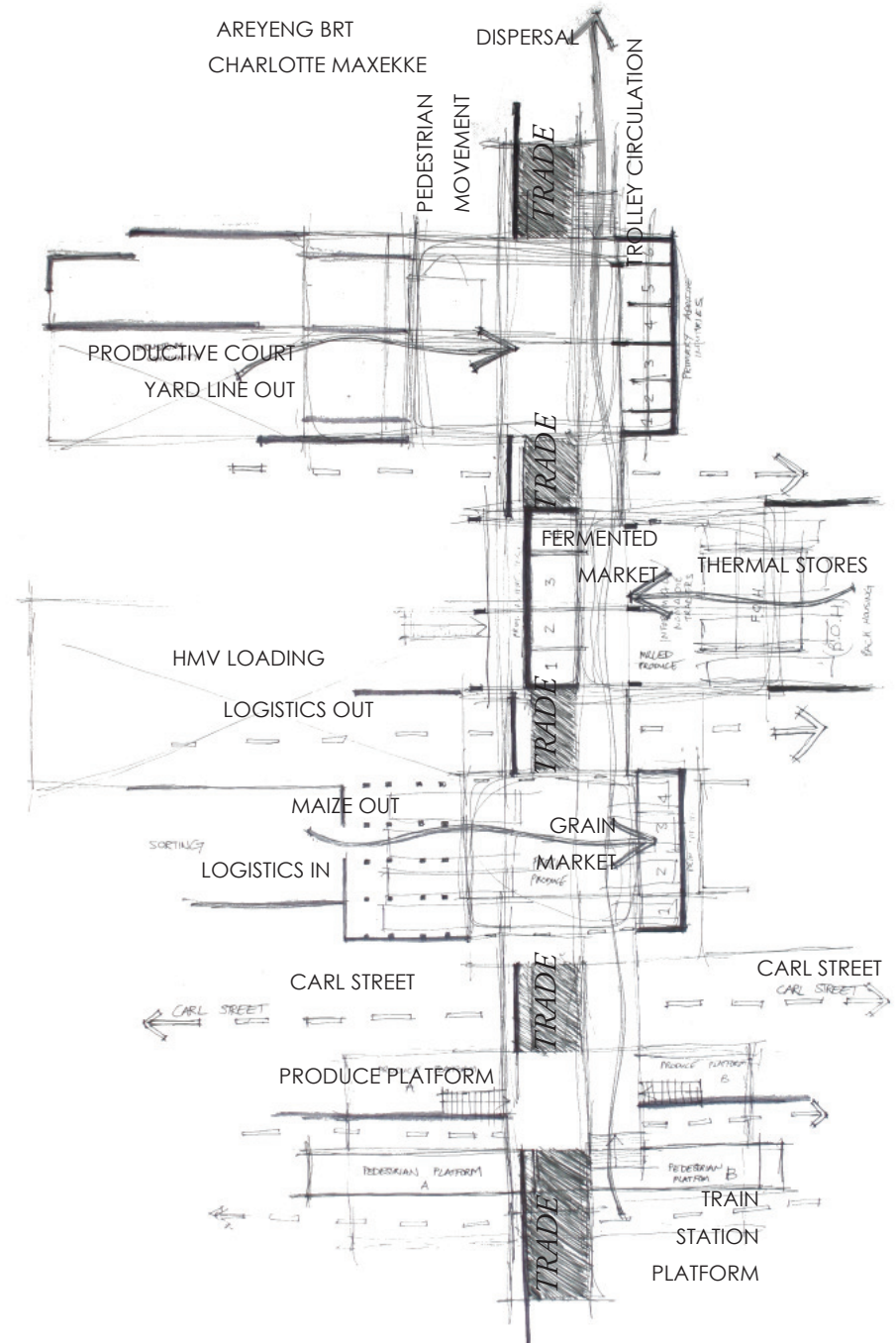


Fig 7.10 Allowing production lines into shared spaces (Author, 2017)

organizes the informal as an ordered and legible addition to the existing industrial site.

The draping of the roof structure results as an efficiency of structure as the main circular structure inverts the bending moment diagram posed by the self-weight of a spanning structure. Additions to this efficient structure then is used to naturally ventilate the structure. This was achieved by iterating various airflow patterns that could best eject foul air. A Daylighting study further contributed to the design scattered sunlight defines a varying width of walkway that corresponds to the varying activity level due to the train station's fluctuating activity.

A water recycling system is utilised that captures rainwater from the roof structure, flows freely to underground storage pipes where photo voltaic assisted pumps pressurise the water supply. This water is used for cleaning purposes and other non-potable purposes. Once used the water is recaptured by means of grated drains in the floor. The Greywater is then stored in a separate storage pipe and is then recycled in the existing oil plant that extracts bio-oil from food waste. This oil is used to power generators that power lights and pressure washers that continue the water recycling system.

The nature of the design as discussed during this presentation continues a view of the built environment not as a stagnant object but rather as continually evolving where the architecture is an addition in itself but also allows street traders and larger, more temporary additions to continually attach and evolve, as activities are catalysed between anchoring nodes of activity.

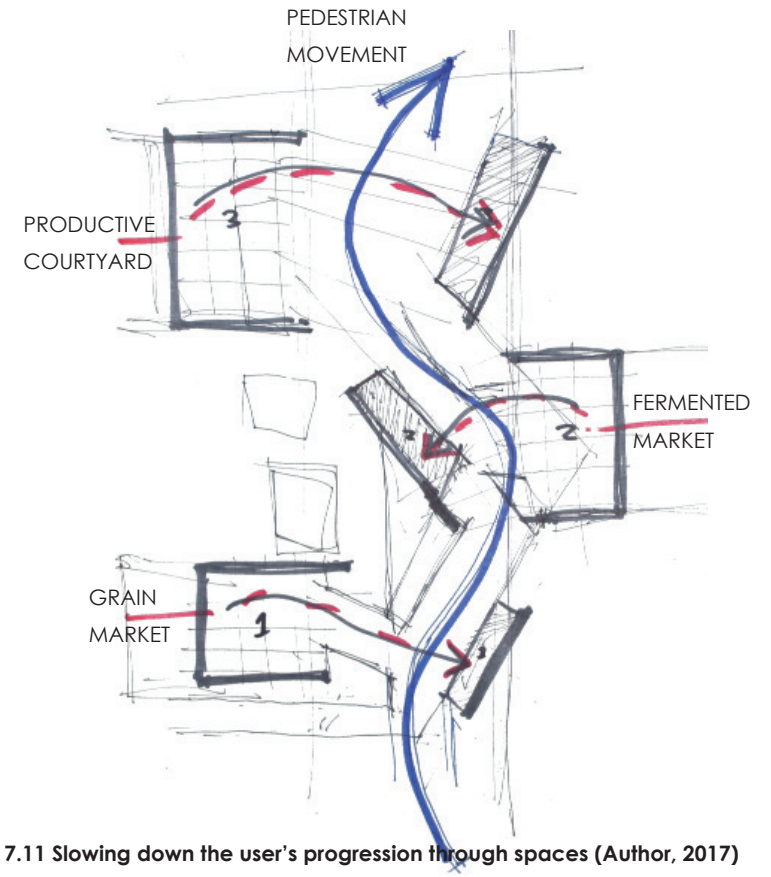


Fig 7.11 Slowing down the user's progression through spaces (Author, 2017)

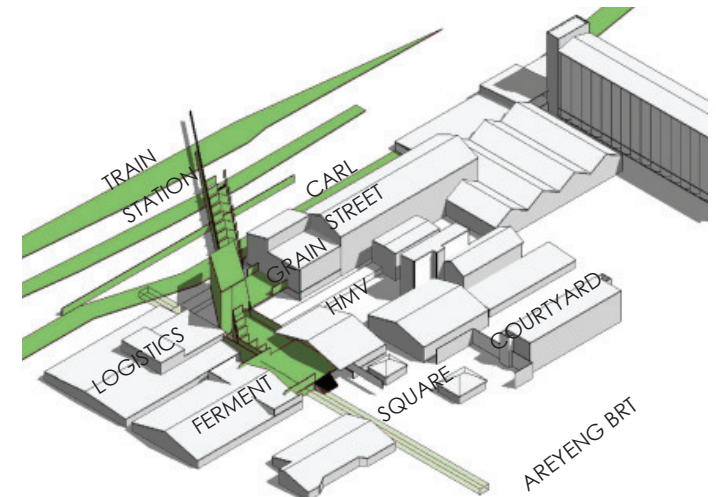


Fig 7.12 Draping the Market Between Nodes (Author, 2017)

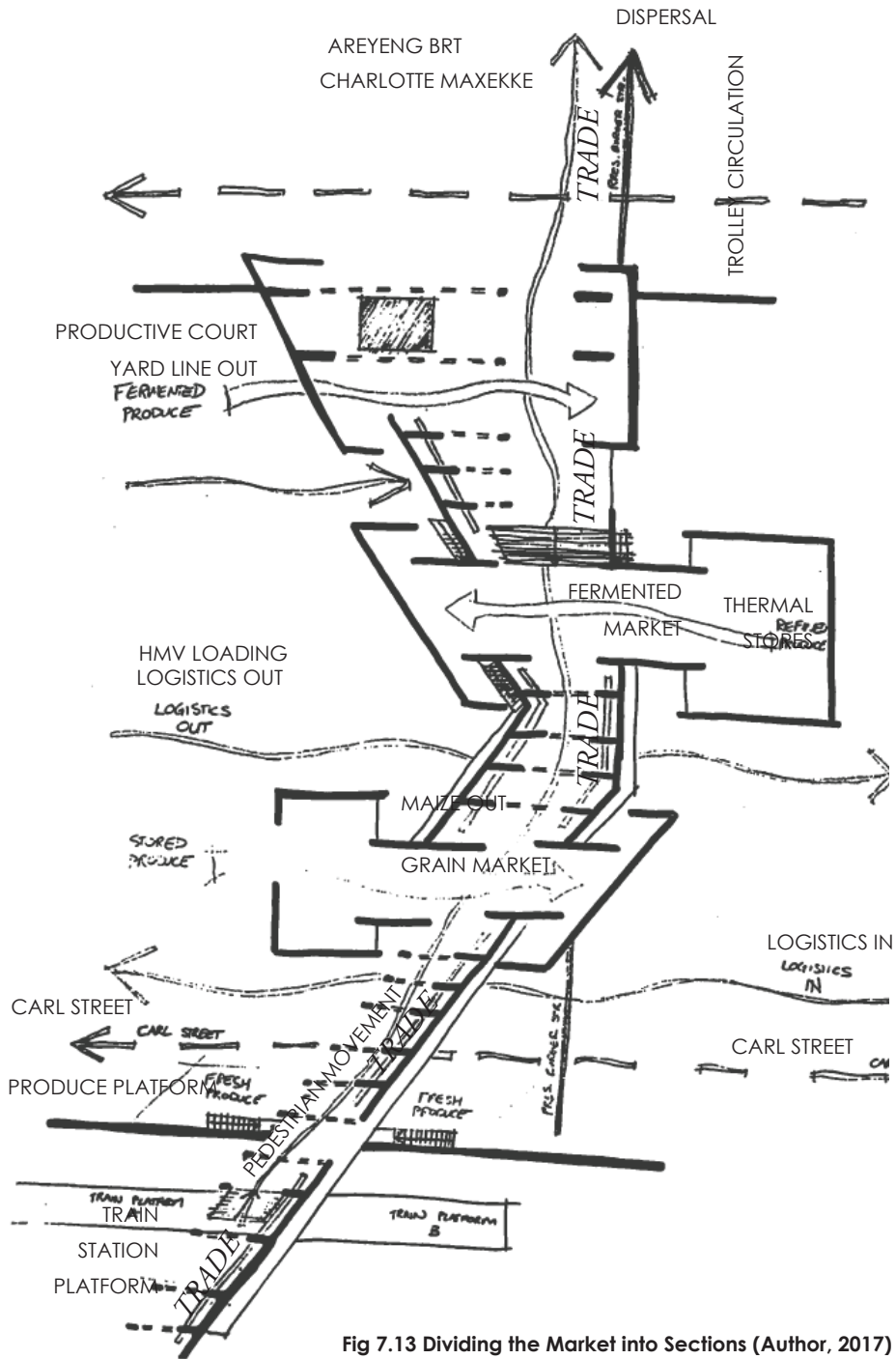


Fig 7.13 Dividing the Market into Sections (Author, 2017)

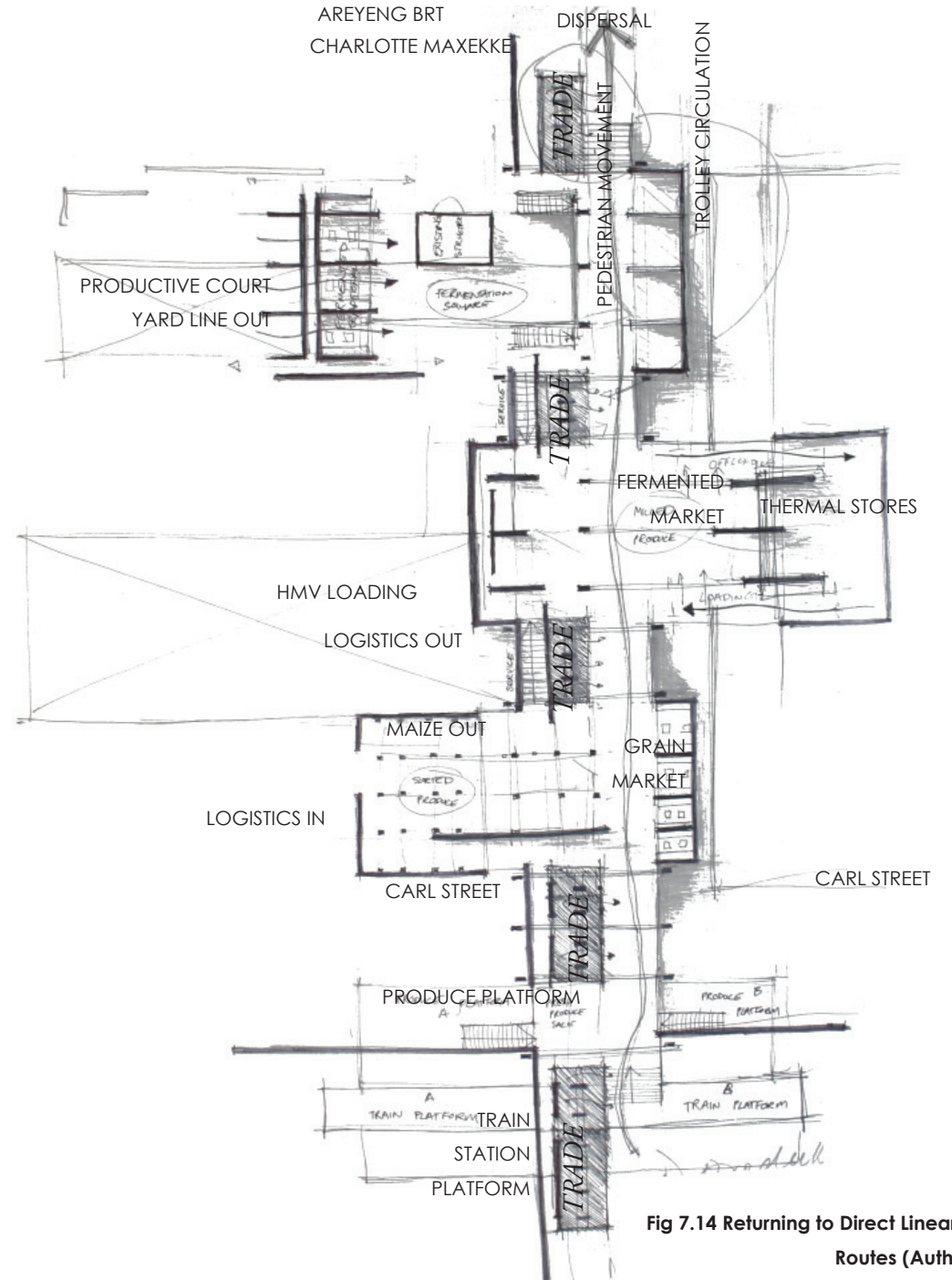


Fig 7.14 Returning to Direct Linear Process Routes (Author, 2017)

PHYSICAL MODELS

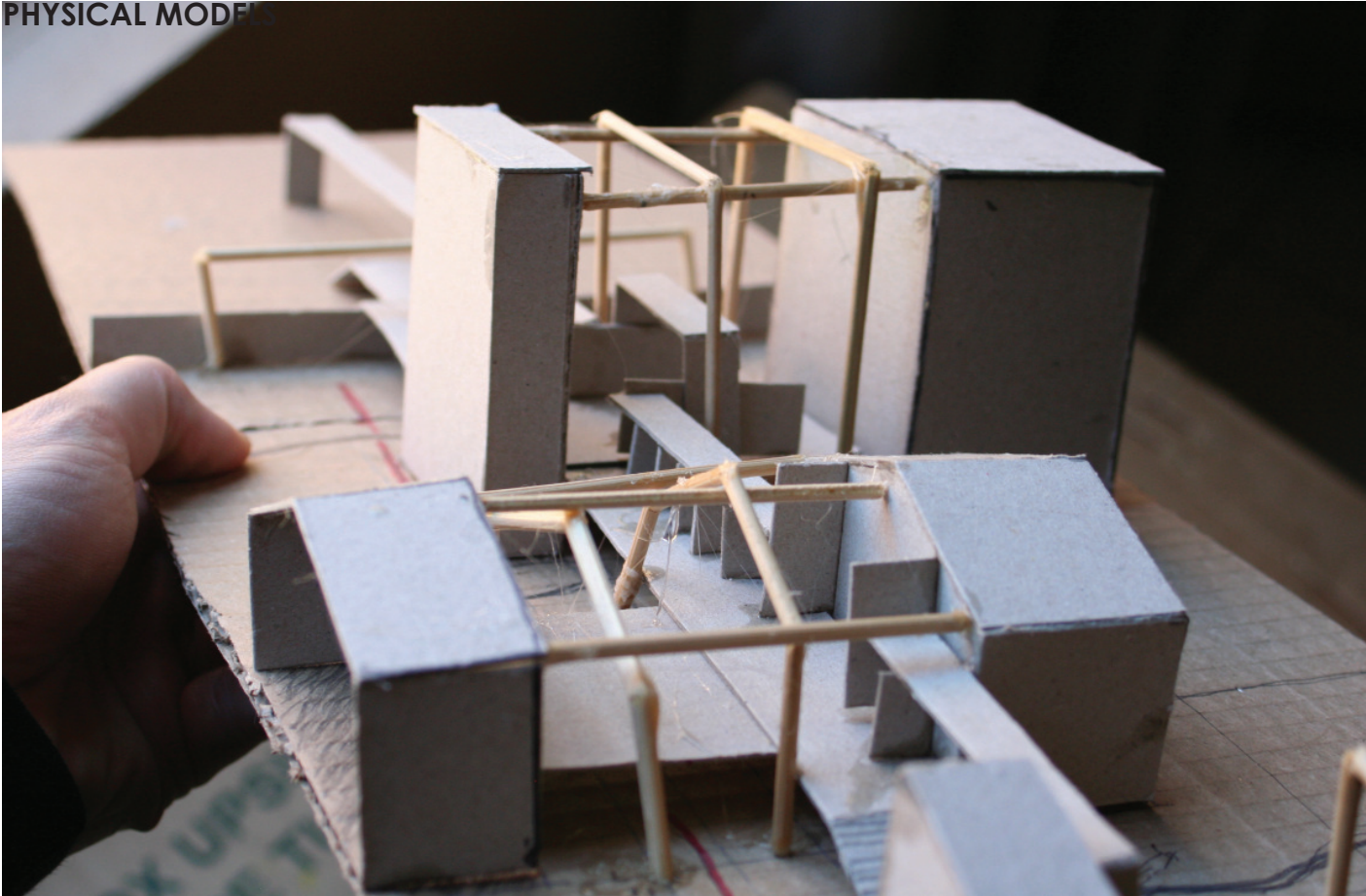


Fig 7.15 Direct Transposing of Facade (Author, 2017)

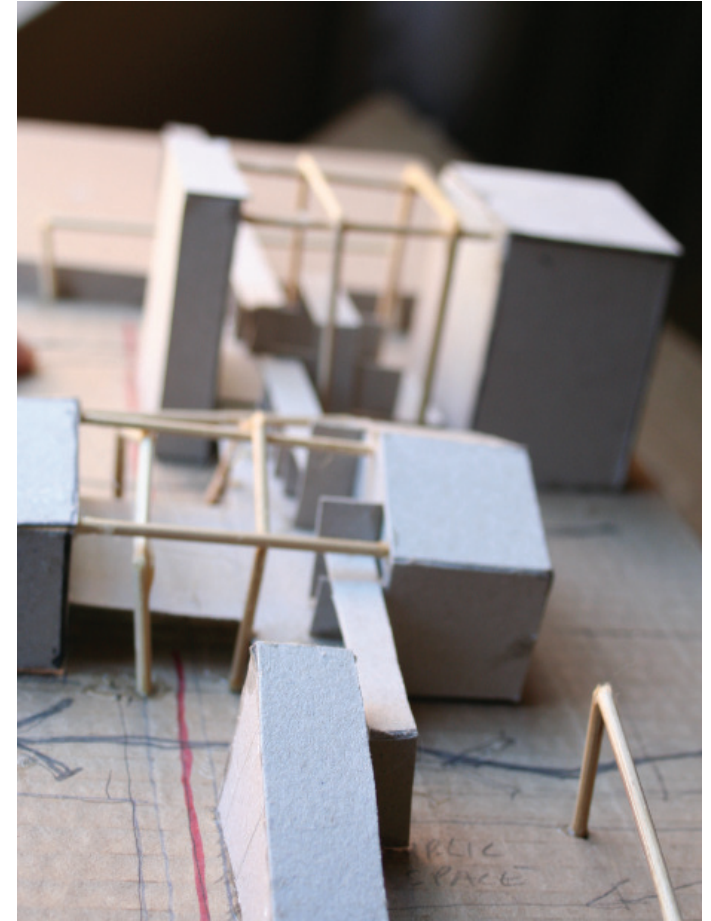


Fig 7.16 Stepped Extrusions (Author, 2017)



Fig 7.17 Tectonic Insertions between Old and New (Author, 2017)

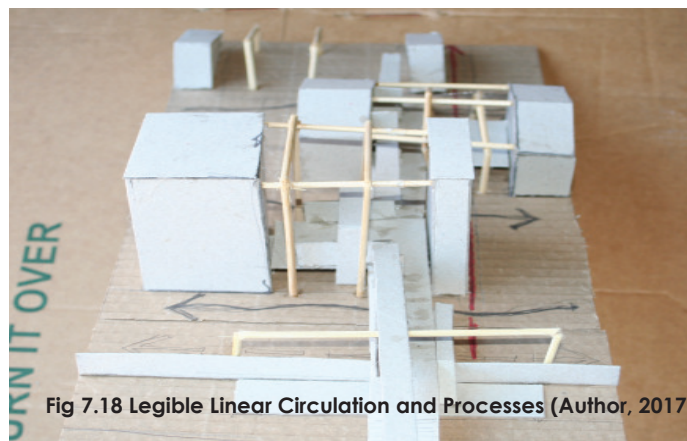


Fig 7.18 Legible Linear Circulation and Processes (Author, 2017)



Fig 7.19 Informal Production on Bridge Over Service Road (Author, 2017)

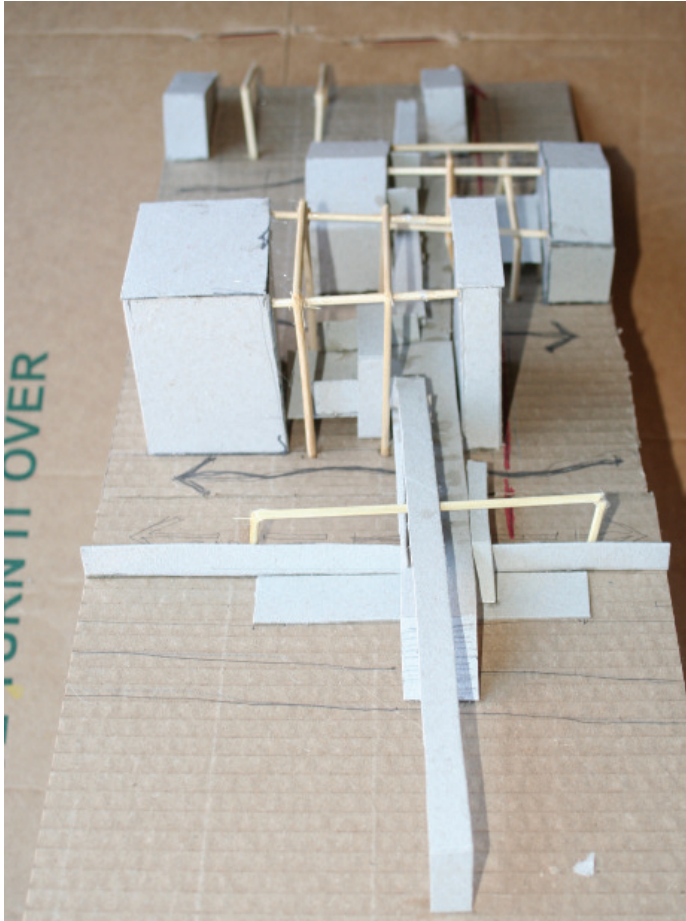


Fig 7.20 Crossing Over the Railway Lines (Author, 2017)

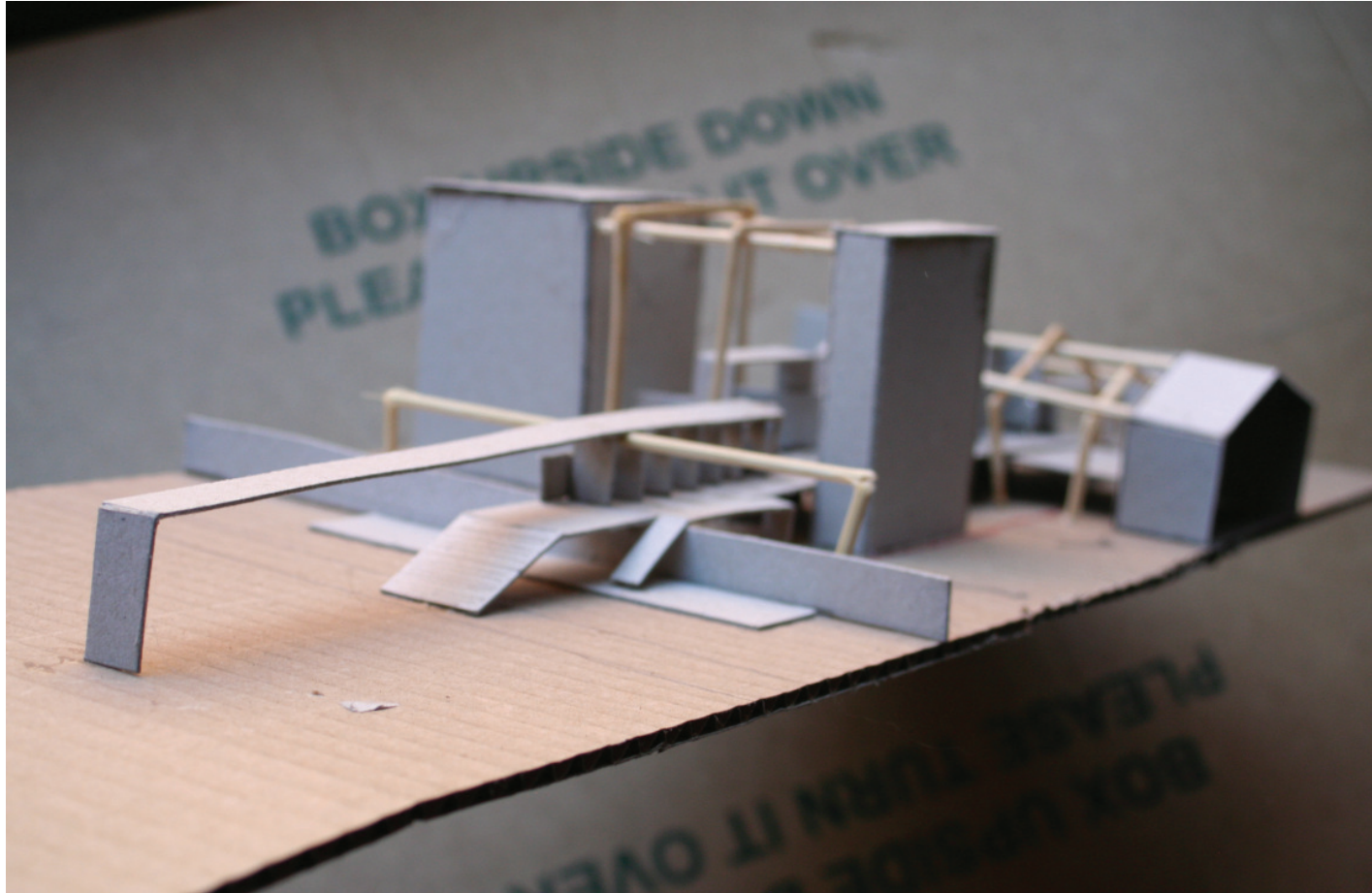


Fig 7.21 Access to Train Platform from Service Road and Market (Author, 2017)

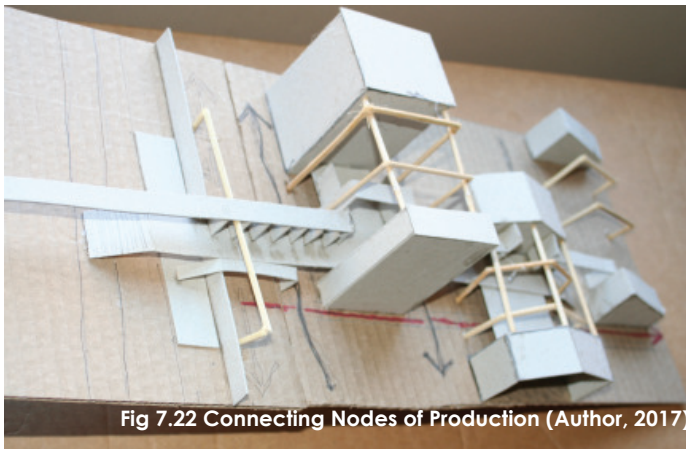


Fig 7.22 Connecting Nodes of Production (Author, 2017)

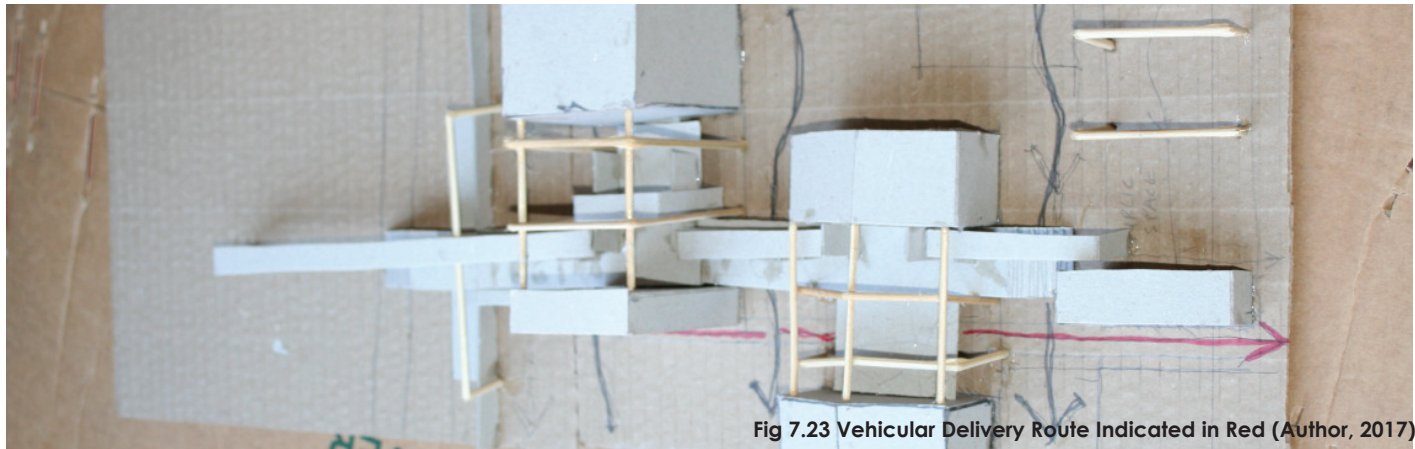


Fig 7.23 Vehicular Delivery Route Indicated in Red (Author, 2017)

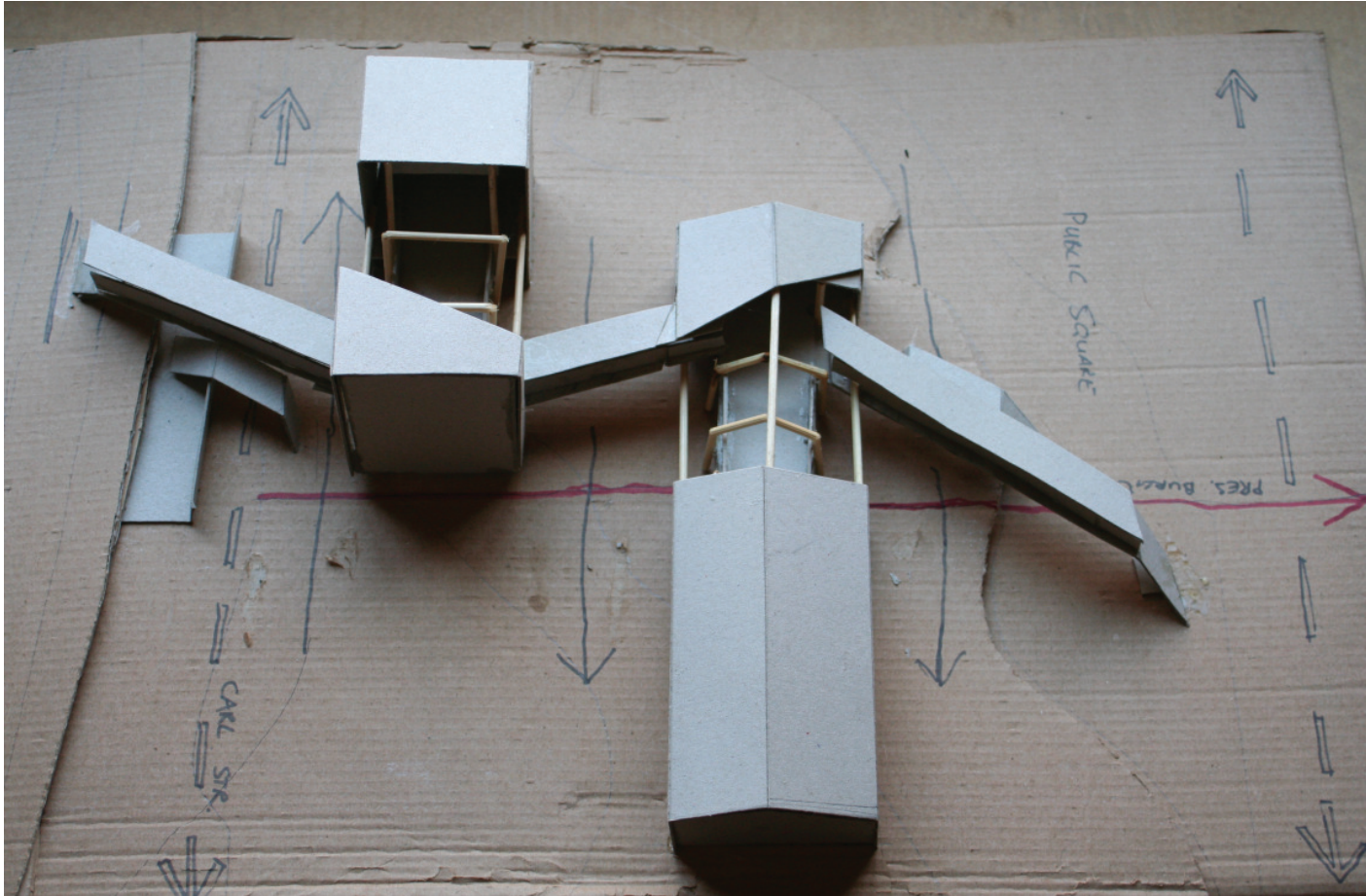


Fig 7.24 Revised Connective Route (Author, 2017)

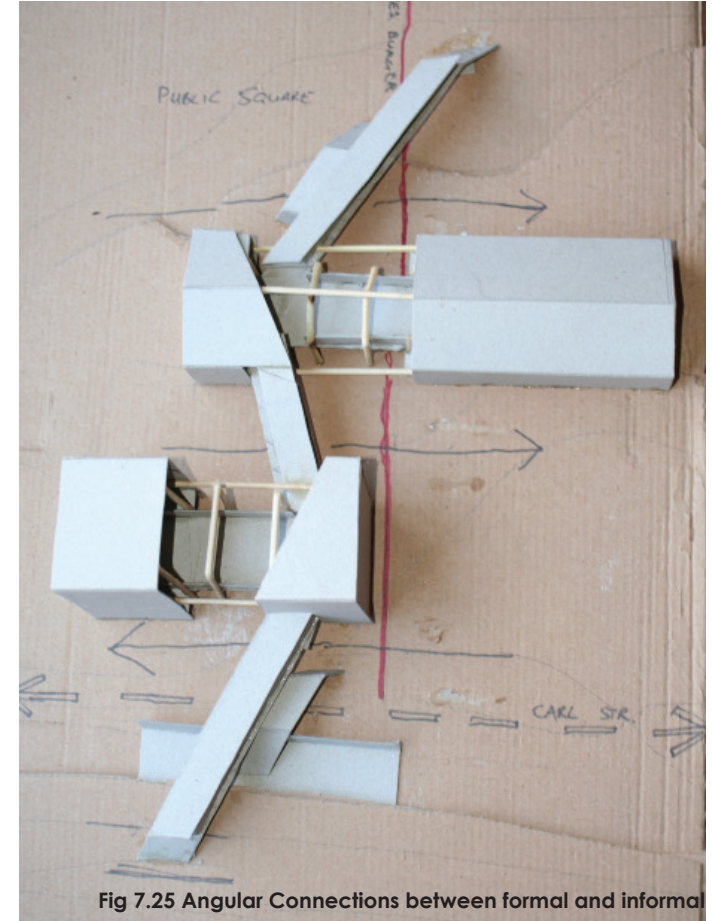


Fig 7.25 Angular Connections between formal and informal (Author, 2017)



Fig 7.26 Horizontal Order and Alignment Between Market and Existing Building (Author, 2017)

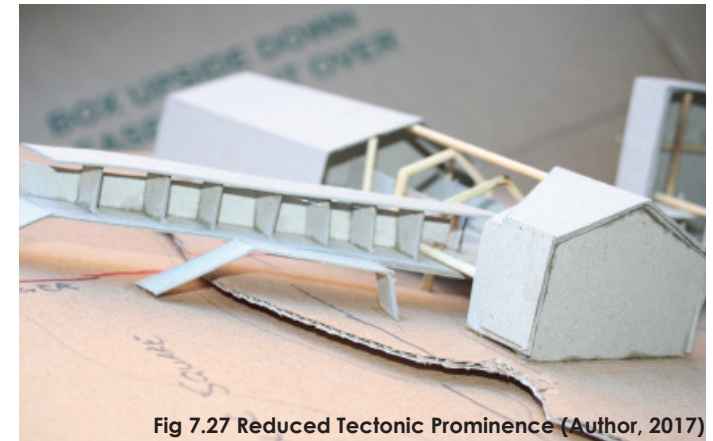


Fig 7.27 Reduced Tectonic Prominence (Author, 2017)



Fig 7.28 Informal connection to new facade (Author, 2017)



Fig 7.29 Continuous Raised Market (Author, 2017)



Fig 7.30 Horizontal Penetration of Market (Author, 2017)

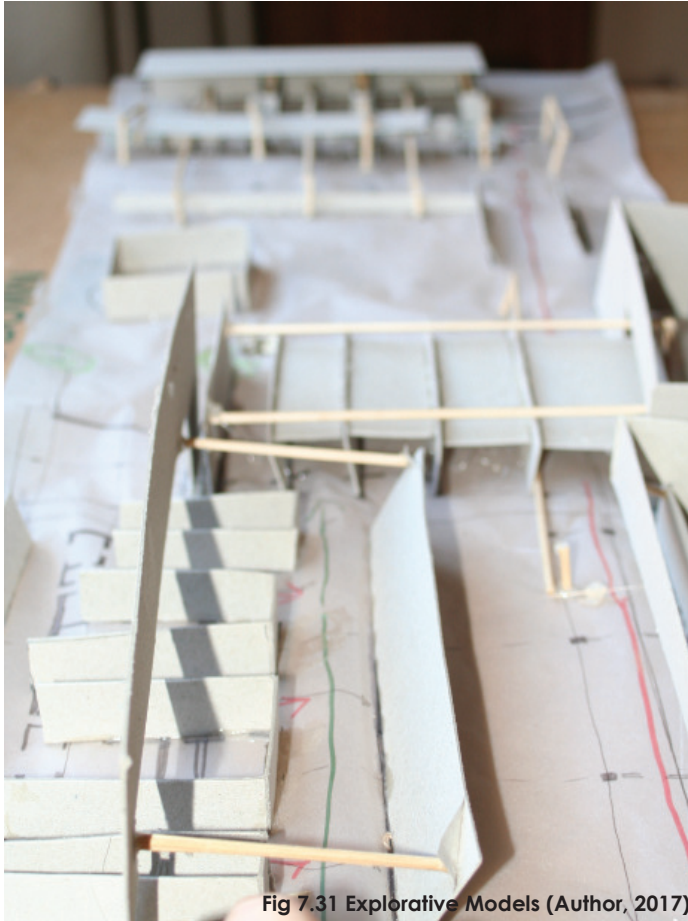


Fig 7.31 Explorative Models (Author, 2017)

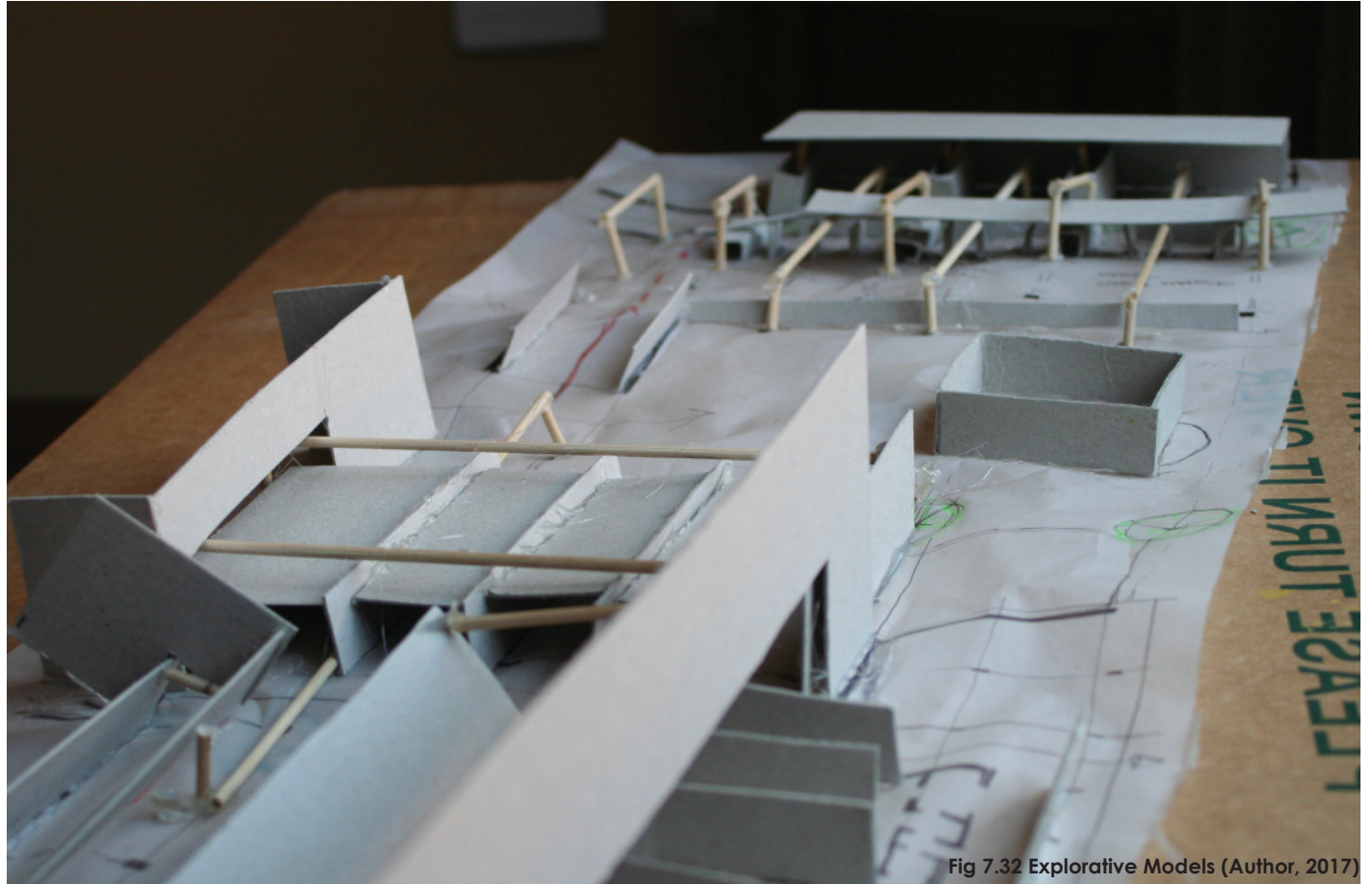


Fig 7.32 Explorative Models (Author, 2017)

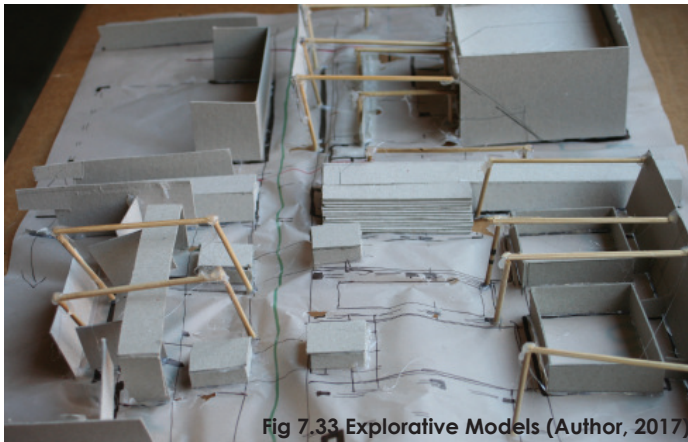


Fig 7.33 Explorative Models (Author, 2017)

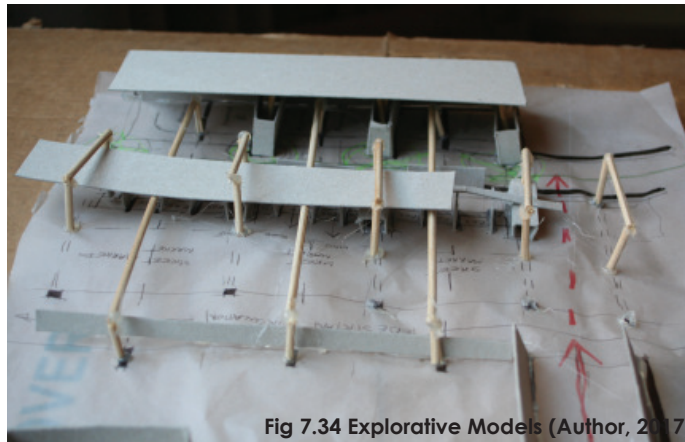


Fig 7.34 Explorative Models (Author, 2017)

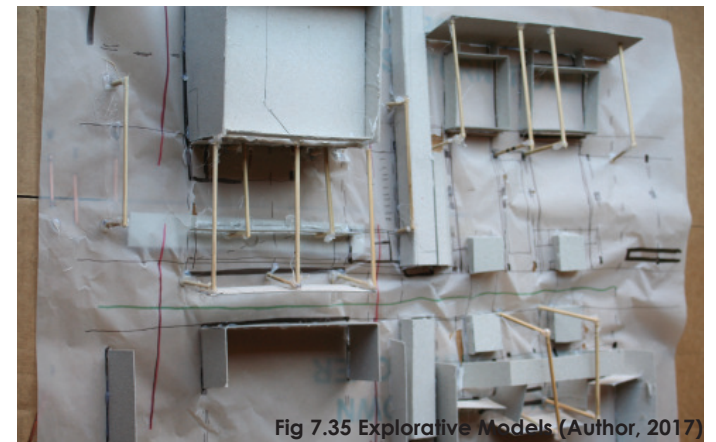


Fig 7.35 Explorative Models (Author, 2017)

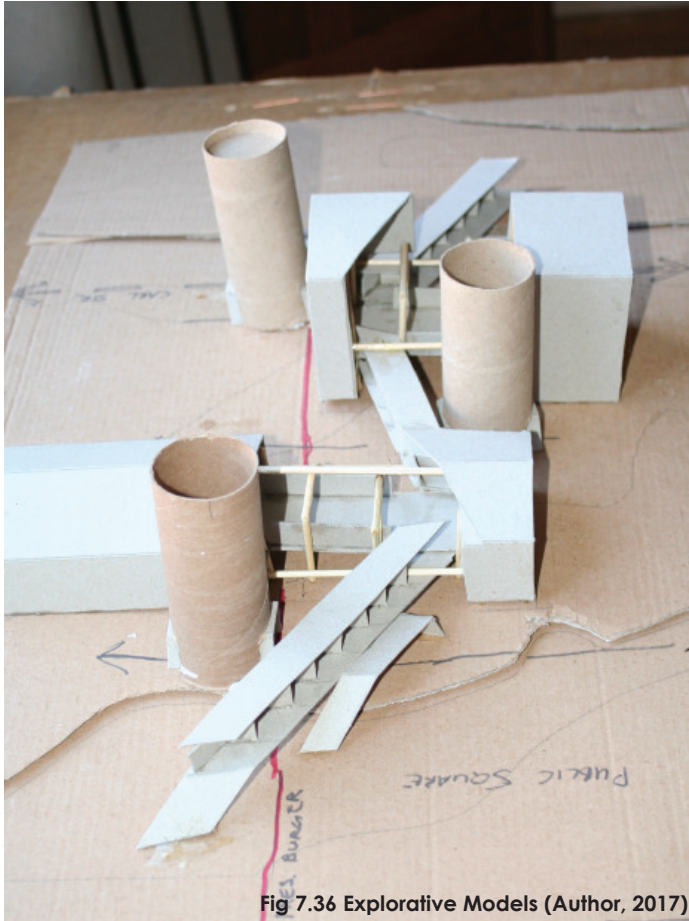


Fig 7.36 Explorative Models (Author, 2017)

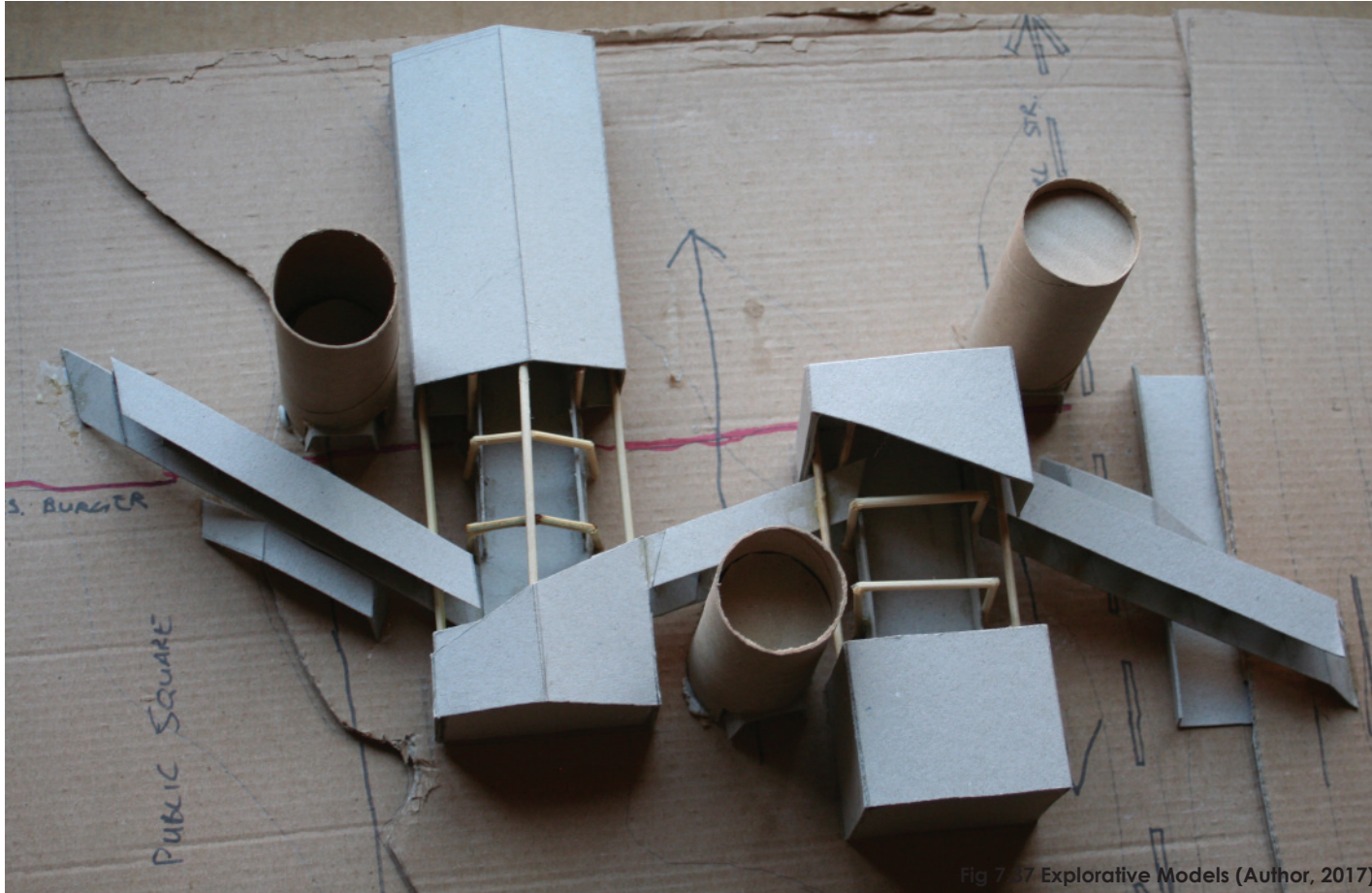


Fig 7.37 Explorative Models (Author, 2017)

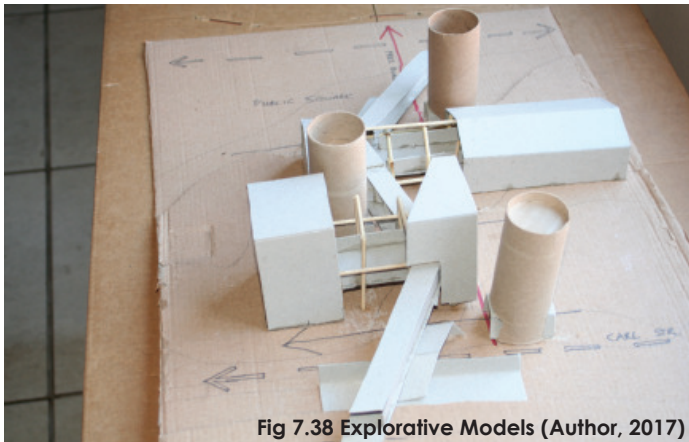


Fig 7.38 Explorative Models (Author, 2017)

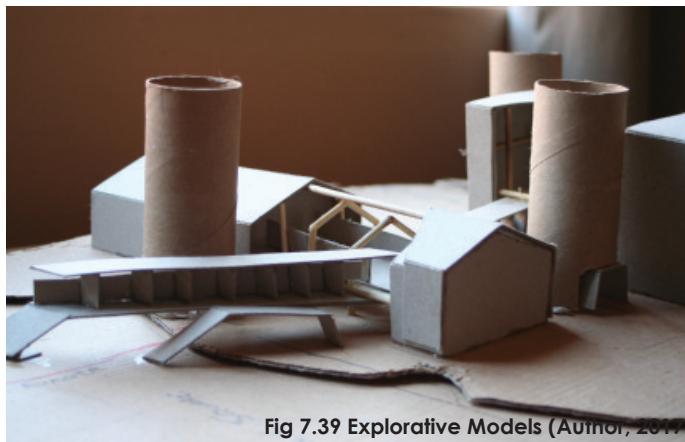


Fig 7.39 Explorative Models (Author, 2017)



Fig 7.40 Explorative Models (Author, 2017)



Fig 7.41 Site Photo (Urban Vision, 2017)



Fig 7.42 Site Photo (Author, 2017)



Fig 7.43 Site Photo (Author, 2017)



Fig 7.44 Site Photo (Author, 2017)



Fig 7.45 Site Photo (Author, 2017)



Fig 7.46 Tshwane Market (Google Earth, 2017)