Fig. 8.1 Technical sketches (Author, 2017)

Fig. 8.2 Solar Study (Author, 2017)
PRODUCTIVE CORRIDOR AS BINDING ELEMENT TO TSHWANE MARKET, SILOS AND PRETORIA SHOW GROUNDS

CONTINUING AN AESTHETIC OF ELEMENTS IN THE LANDSCAPE DRAPED OVER THE FUNCTION AS A BINDING ELEMENT

Fig. 8.3 Section (Author, 2017)
**TECTONIC CONCEPT:**
A roof superimposes a grid that organizes and unifies various interdependent elements. These interdependent elements can be described as a series of layers that make up the building. From the onset of the design the intentions were to imply an open outline for architecture rather than creating a sealed and controlled environment. Thus, instead of isolating the user from the environmental factors, elements such as direct sunlight is used as a dynamic device that influences the habits of users during the specific times of the day. Thermal Comfort of users is addressed in specifically zoned and controlled areas, whilst the majority of the intervention is kept open. Relating to the intentional openness of the space, is the lightness of the architecture that accompanies it. The openness of space contrasts the closed, and isolated nature of the existing industrial buildings.

**ENVIRONMENTAL STRATEGY**
This open air nature of the street market that superimposes itself onto the food production activities taking place below dictates the environmental strategy. Due to the open air nature of the design, a Greenstar design rating was utilized instead of energy modelling techniques that rely on enclosed climate control. Construction depends on the sourcing of materials from surrounding industries whilst the running demand on resources depends on a cyclical system that reuses greywater, extracts bio-diesel from food scraps and generates electricity. Programmatically the informal industries reduce waste generated by the formal industries by incorporating human activities into the process of producing food. The symbiotic relationship encourages reduction in waste and simultaneously shortens the supply chain. The transportation of goods between industry and market
SHADING DESIGN

GBCSA - GREENSTAR RATING
5 STARS RATING WITH 70 CREDITS
(6 STAR RATING WITH 5 POTENTIAL ADDITIONAL CREDITS)

Refer to Appendix B for a detailed description of the credits that were achieved in each category.

Fig. 8.10 Greenstar Rating Credit Categories (GBCSA, 2017)

Fig. 8.11 Climate (Revit 2016 by Author)

Fig. 8.12 Climate (Revit 2016 by Author)

Fig. 8.13 Solar Study (Revit 2016 by Author)
is greatly reduced and economic opportunities are generated along the new market infrastructure.

TECHNIFICATION OF AN (IN)FORMAL PROGRAM
By intensely programming a series of nodes with interactions between, informal programs could be catalysed to settle along the interactions between these nodes. The informal process is then free to change as the requirements of production change, whilst the formal (existing) nodes remain stagnant. By incorporating spill out spaces for informal programs that cannot be predicted, the existing programmes can serve as a host and be activated by the informal programs in a symbiotic relationship.

EXTENDING THE OLD INTO THE NEW
The structural rhythm and order of the existing buildings is extended and expressed through the new additions, creating a unity in proportions between old and new. The extension of the old into the new aligns with the original architectural concept of the extending of existing functions towards the public. The illegible aesthetic of the existing structures is thus addressed (through the new additions) by highlighting the most prominent architectural system; the structural frame.

OUTLINES
Various layers of the proposal depend on subtly implied boundaries and suggestions of space. Historic erf boundaries for instance forms distinct development patterns in the existing structures and form the broad proportional grid to which the new structure is ordered. These faint historic outlines are highlighted whilst the expected silhouette of the new building is blurred. The organisational grid thus becomes more important, and thus more prominent, than the roof that it carries.
Fig. 8.15 Ground Floor Plan (Author, 2017)

Fig. 8.16 Roof Plan (Author, 2017)
Fig. 8.17 Train Station Plans (Author, 2017)
SYSTEMS DESIGN

RAINWATER HARVESTING
1970m³ CATCHMENT AREA ROOF STRUCTURE

WASTE CATCHMENT
Filtration and separation of wet waste and greywater recycling

OIL PLANT
INDUSTRIAL PROCESS REFINING

WATER STORAGE TANKS
Rainwater storage and separate greywater storage

PRESURE WASHING
Daily cleaning of stalls and walkways

ENERGY GENERATION
Generators convert biofuel into electricity on site used for lighting and pressure washing

PHOTOVOLTAIC PANELS
450m² photovoltaic cells powering waterpumps and lighting

GREYWATER RECYCLING
Greywater recycling used for irrigation as well as toilet

AIRCURTAIN
PEST CONTROL AIR QUALITY CONTROL COMPARTMENTAL AIR CONTROL

Fig. 8.18 Shading Design (Revit 2016 by Author, 2017)

Fig. 8.19 Systems Design (Author, 2017)
Fig. 8.21 Elevations (Author, 2017)
Fig. 8.36 Detail 2 (Author, 2017)
Fig. 8.37 Detail 3 (Author, 2017)
Fig. 8.38 Detail 4 (Author, 2017)
Fig. 8.40 Detail 6 (Author, 2017)