



CHAPTER 7

Framework development

Fig. 7.1 Entrance to Wupperthal
(Franklin 2015)

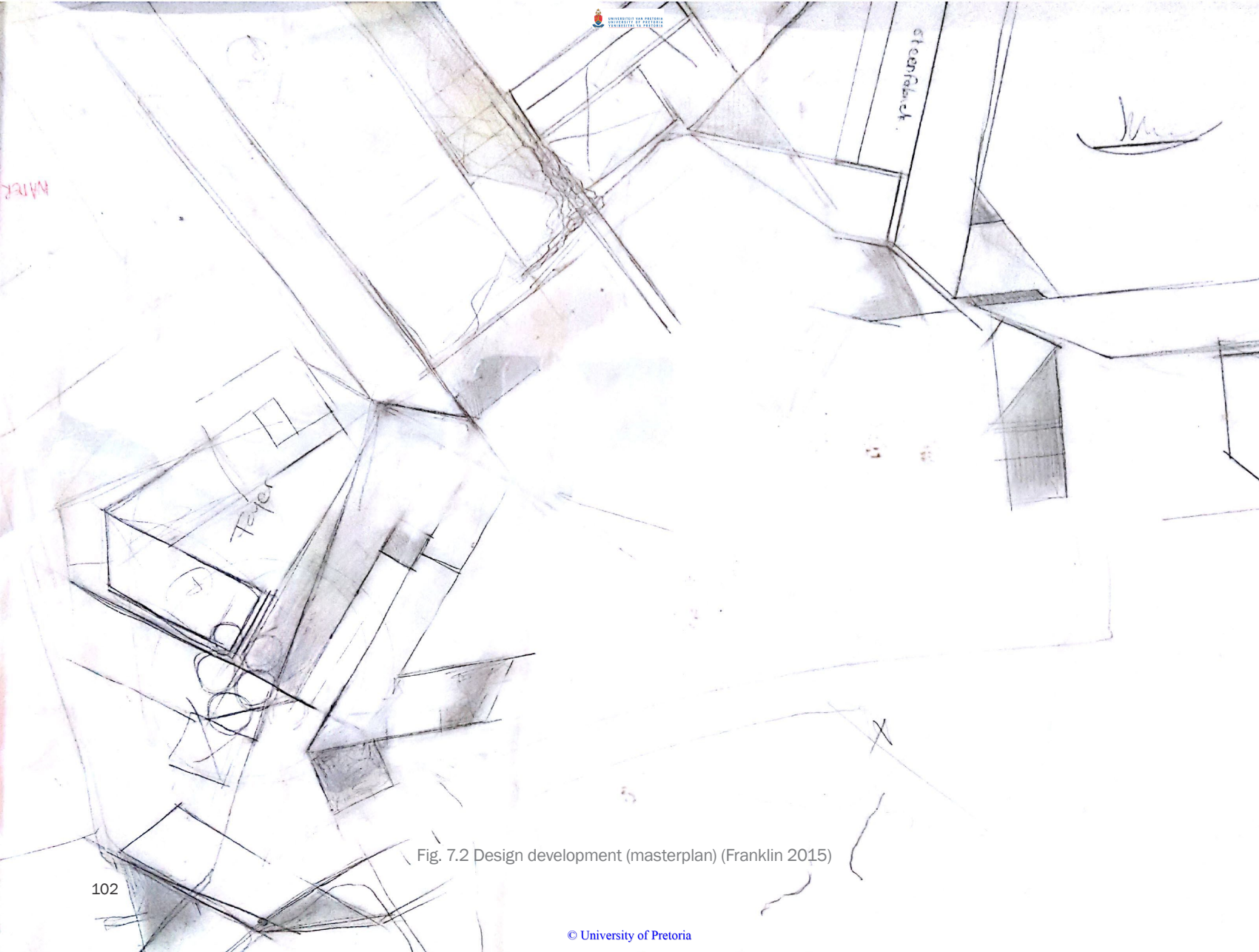


Fig. 7.2 Design development (masterplan) (Franklin 2015)

Chapter 7 discusses the formation of the frameworks based on the mapping and analysis of space and features in Wuppertal. These frameworks follow different scales, narrowing down to the masterplan. The overall water strategy as well as the rooibos drying platform will be discussed as part of the masterplan while the planting strategy will be discussed as part of the technical investigation in the next chapter leading up to the sketchplan.

KEY

- 01 Mapping
- A Documentary B Oral C Physical
- 02 Assess significance
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Greater Wuppertal Area Framework (38 000ha)

Wuppertal Mission Framework (120ha)

Wuppertal Mission Route Masterplan (20ha)

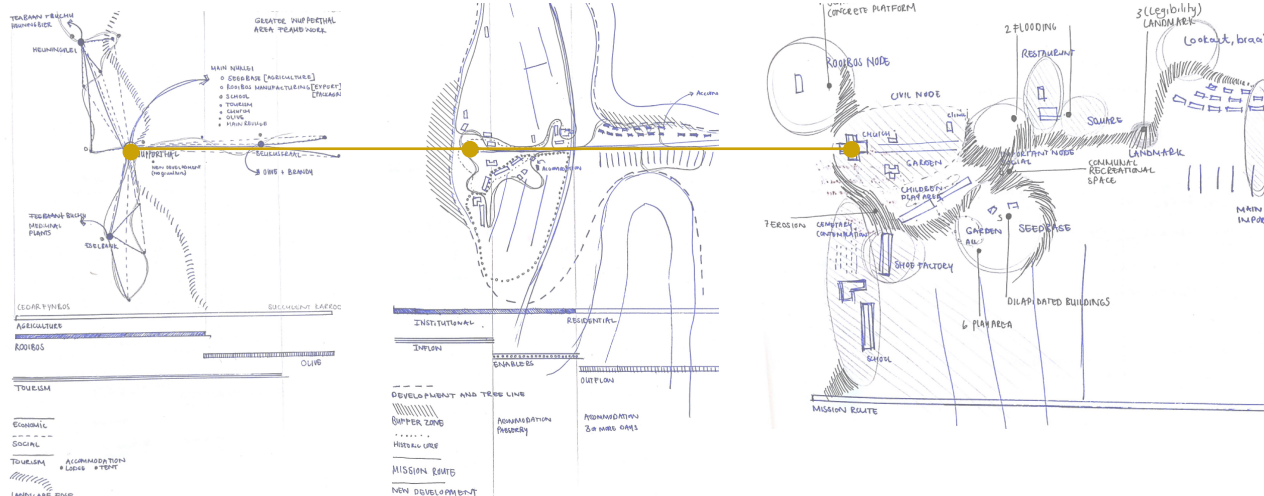


Fig. 7.3 Framework development diagrams (Franklin 2015)

7.1 GREATER WUPPERTHAL AREA FRAMEWORK

38 000 ha

The Greater Wuppertal Area Framework responds to the larger composition of Wuppertal and its fourteen outposts as it came into being over the years. The framework focuses on the economic landscape on which Wuppertal is based. In order to restore Wuppertal as socio-economic hub to its people this landscape needs to be understood in its totality. Wuppertal fulfils an important social role as central hub to the fourteen outposts.

The Greater Wuppertal Area is divided into two main landscape vegetation types. These vegetation types determine the spatial character of the area and the potential of the land. The Cederberg Sandstone Fynbos (Ceder formations) to the east and the Agter-Sederberg Shrubland (Karoo formations) to the west (see Chapter 6 for a more detailed description). Rooibos (*Aspalathus linearis*) is a dominant feature in the

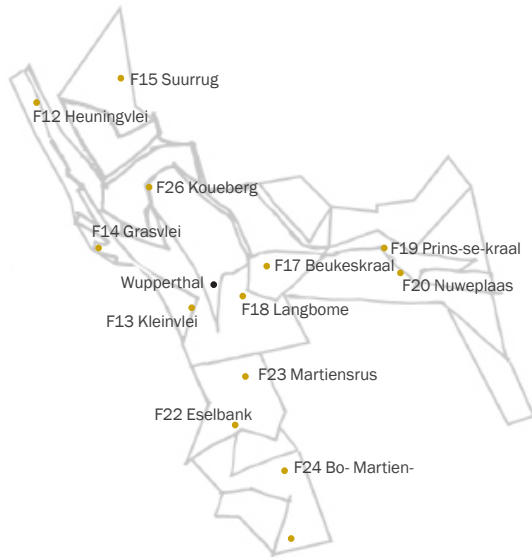


Fig. 7.4 Fourteen outposts (Franklin 2015)

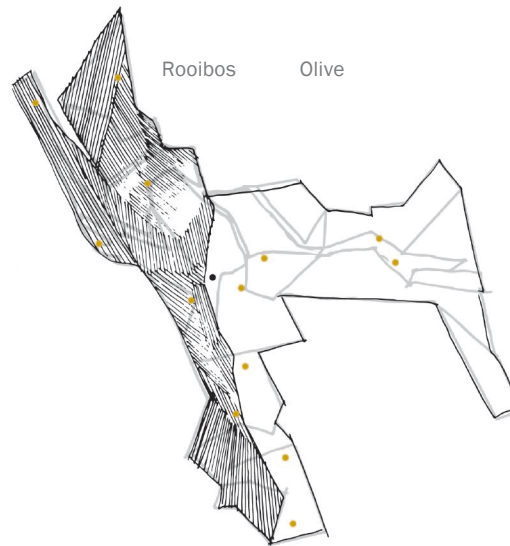


Fig. 7.5 Economic opportunity (Franklin 2015)

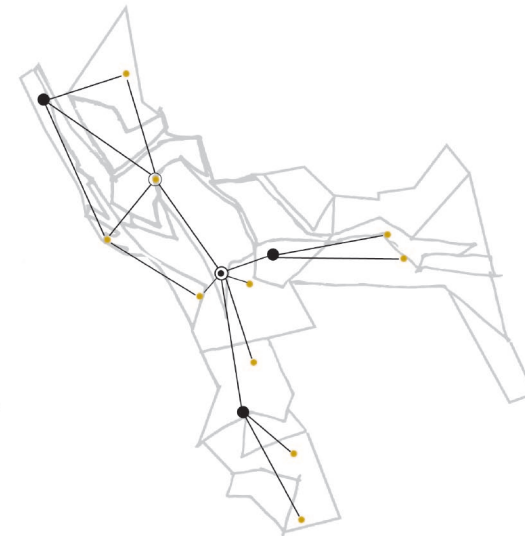


Fig. 7.6 Proposed economic links (Franklin 2015)

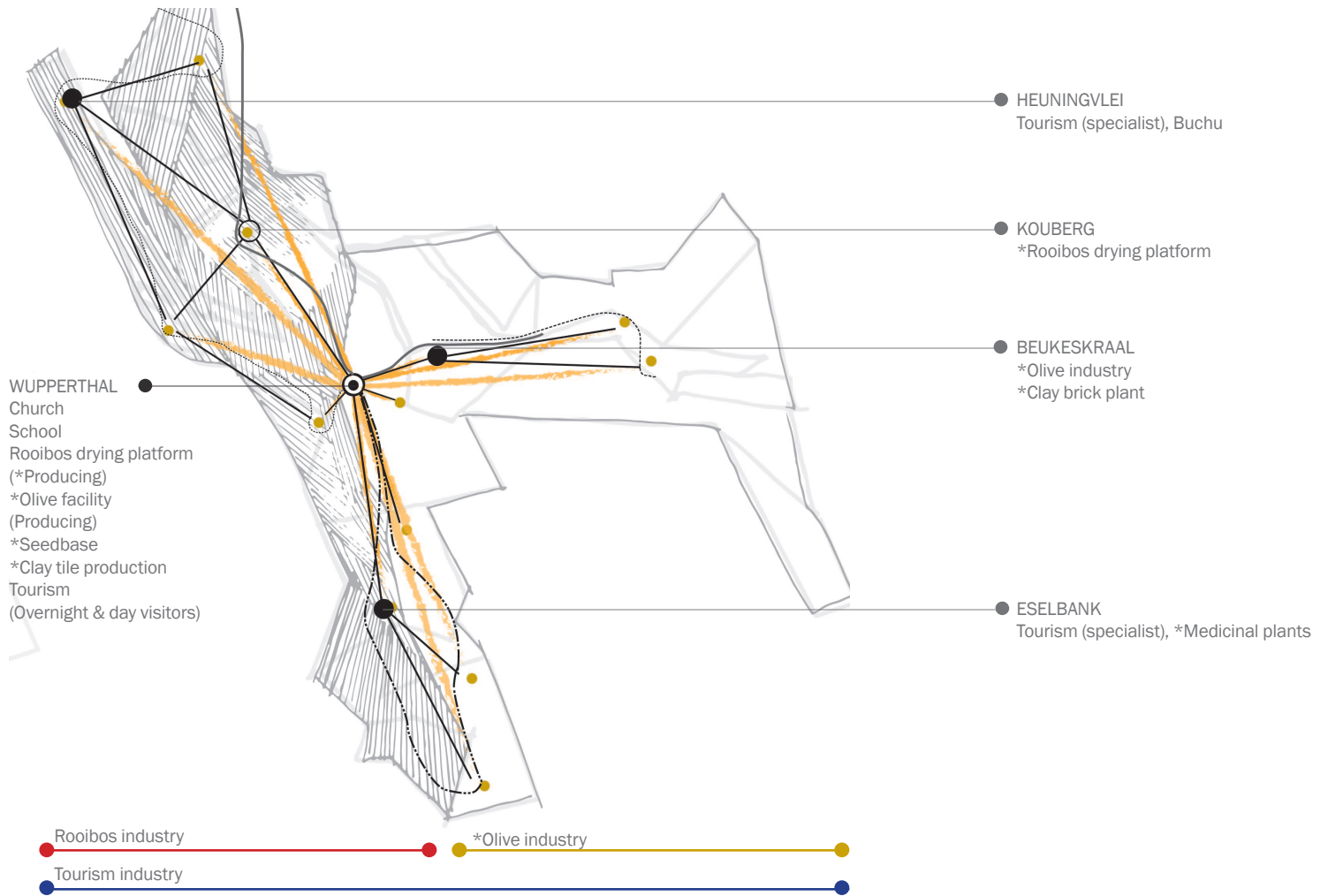


Fig. 7.9 Greater Wupperthal Area Framework (*proposed) (Franklin 2015)

Tourism, as part of Cape Nature Heritage Route, comprises of hiking routes linking some of the smaller outposts. Accommodation, catering, donkey cart rides and the use of guides are some of the economic spin-offs that occur as a result of tourism. Tourism is not only limited to these hiking routes, but outposts can be reached as a destination in itself by gravel roads, mostly only accessible by high clearance vehicles. The isolation and condition of the roads dictates the ‘specialist visitors’ to the greater area while Wuppertal itself receives more day visitors. Specialist visitors have an interest in specific activities such as hiking, birding and botany.

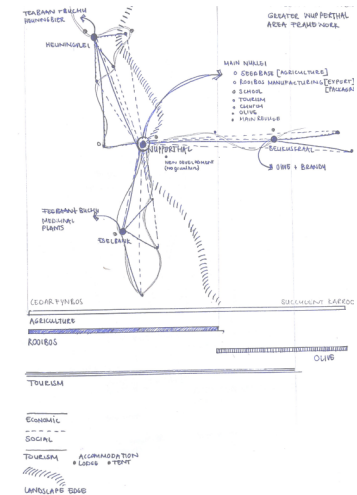
Wuppertal as socio-economic hub to its people (including all fourteen outposts) needs to support and represent these functions. The social composition of Wuppertal as described in Figure 7.9 of this document helped to understand the role the church has to play as support structure. Wuppertal needs to support both agriculture and skills based activities in the larger context. A junction exists where skills and agriculture work together in value added products. Agriculture produces the raw material, but instead of selling it immediately value is added in the form of manufacturing, where rooibos is worked into tea bags and sold at a higher price. Wuppertal would also form part of a platform to sell these products to visiting tourists and even distribute to other areas. With this proposal, jobs are created by these skill based activities support agriculture in the larger area. This would also apply to the proposed olive industry.

Design considerations

- Review the current rooibos drying facility
- Include proposed olive industry in Wuppertal, trees as well as oil pressing and bottling facility
- Explore sustainable tourism in Wuppertal

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**GREATER WUPPERTAL AREA
FRAMEWORK (38 000ha)**

7.2 WUPPERTHAL MISSION FRAMEWORK

The Wuppertal mission framework includes a set of development lines and spatial organisation guidelines that originated from the analysis and ends in a proposal for an inclusion of a mission route as ordering device for the historic town of Wuppertal. This framework follows on the Greater Wuppertal area and continues into the Mission Route Masterplan.

The mapped images on the right stems out of the mapped features in Chapter 6. These mapped features included visibility, boundaries and roads as base layers. The concept of duality was tested on these base layers that directed the decisions with regards to the placement of development lines and buffers. The layers of dualities mapped include views, energy flow, and choice diagrams that were informed by the features evident in the cultural landscape.

The strong edge in Wuppertal gave way to the development line and the two buffer areas that need to be addressed as part of the Mission Framework. The inflow and outflow functions informed the second set of boundaries. Here inflow functions (church, school, rooibos facility) are located on the foot of the Cederberg mountain range. The area in between this inflow area and the outflow area (residential area) forms the enabling functions (see Chapter 6 page 71). The mapping of choices highlights the *werf*-like functioning of Wuppertal within its historic core. It is as a result of the lack in legibility that the mission route is proposed with a series of nodes.

The development line forms the outer edge of Wuppertal. This edge is mostly well-defined in terms of its border with rivers or roads. The problematic areas for the buffer is indicated in Figure 7.19. The buffer behind the church will be addressed in the masterplan with the placement of the rooibos platform while the other buffer is a matter of management. The kraal structures are appropriate functional buffers to the larger landscape. These structures will only be allowed to be built with rocks gathered in the area. No roof structures will be allowed. The building line indicates the line in which large buildings (with roof structures) can be placed. The building line is a response to the important transition between the larger natural area, agricultural fields and the build structures. Two areas are marked for development that touches on the historic nodes or ‘absences’, these edges form an interesting interface that will be explored in the sketchplan. The proposed tourism routes are indicated in Figure 7.19. The management of the routes will be discussed in the detail development chapter. Figure 7.22 shows the exploration of nodes and buffers in the development of the framework.

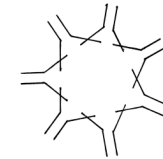


Fig 7.10 Views diagram (Franklin 2015)



Fig 7.11 Visibility analysis in Wuppertal (Franklin 2015)

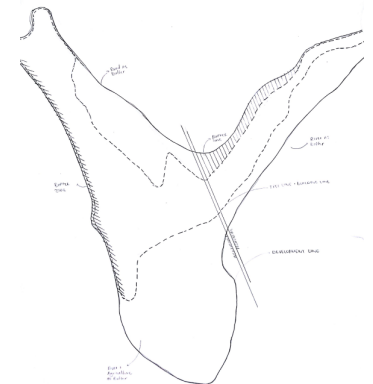


Fig 7.12 Development line, building line and buffer development (Franklin 2015)

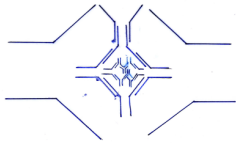


Fig 7.13 Energy flow diagram (Franklin 2015)

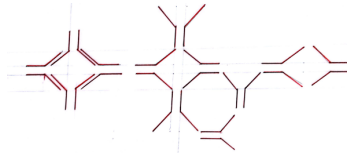


Fig 7.16 Choice diagram (Franklin 2015)

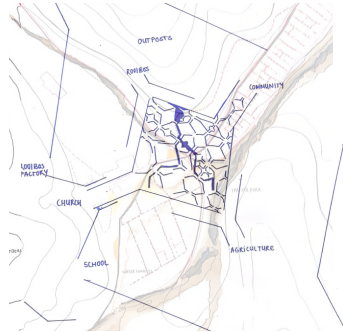


Fig 7.14 Energy flow analysis in Wuppertal (Franklin 2015)



Fig 7.17 Diagram of choices applied to Wuppertal (Franklin 2015)

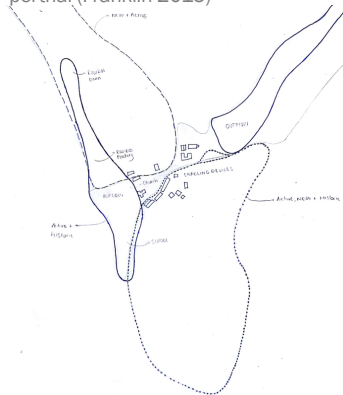


Fig. 7.15 Inflow, Enabling and outflow functions (Franklin 2015)

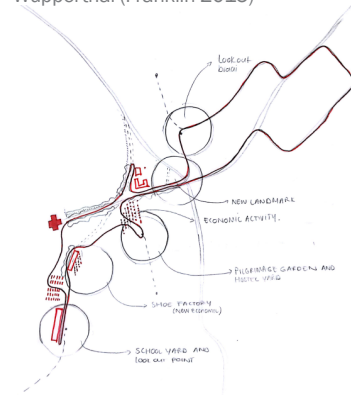
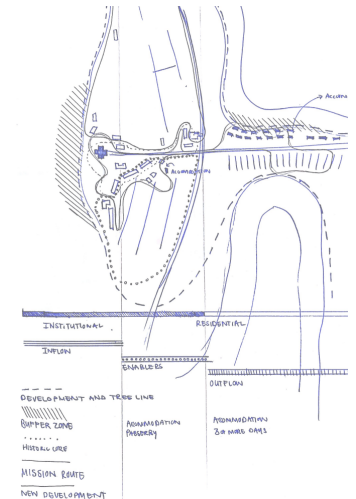


Fig. 7.18 Proposed mission route as master plan (Franklin 2015)

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WUPPERTHAL MISSION FRAMEWORK (1.20 ha)

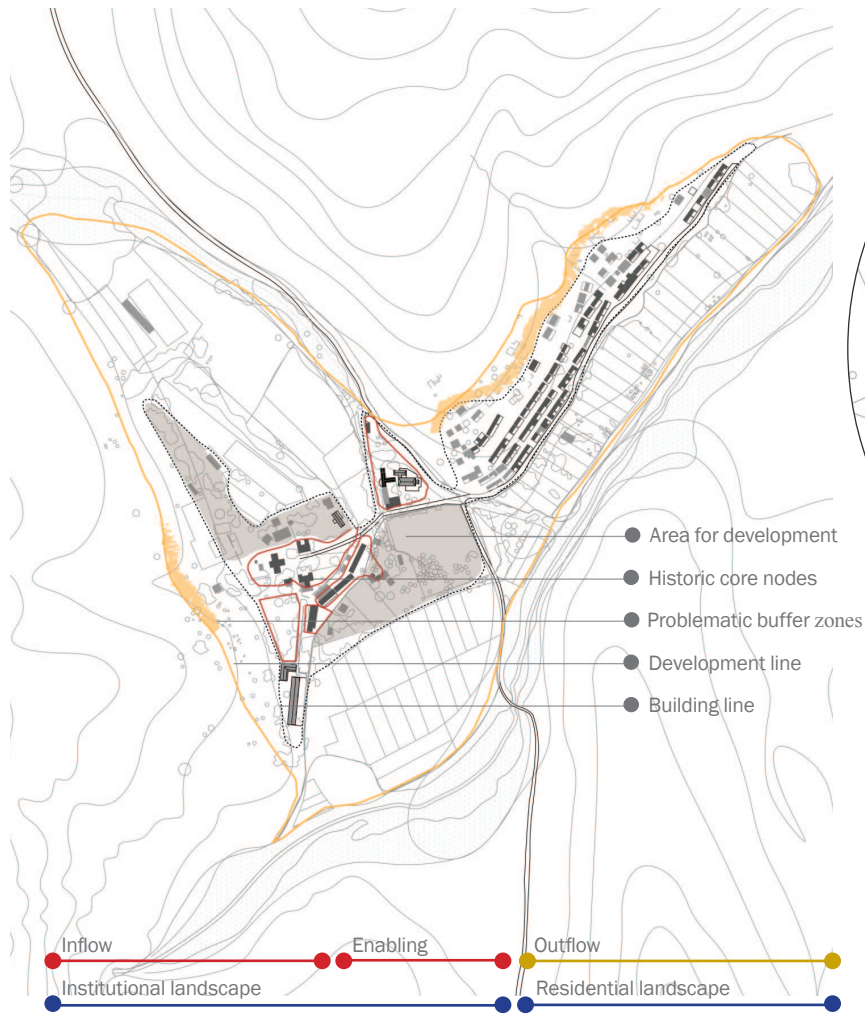


Fig. 7.19 Wuppertal Mission Framework (Franklin 2015)

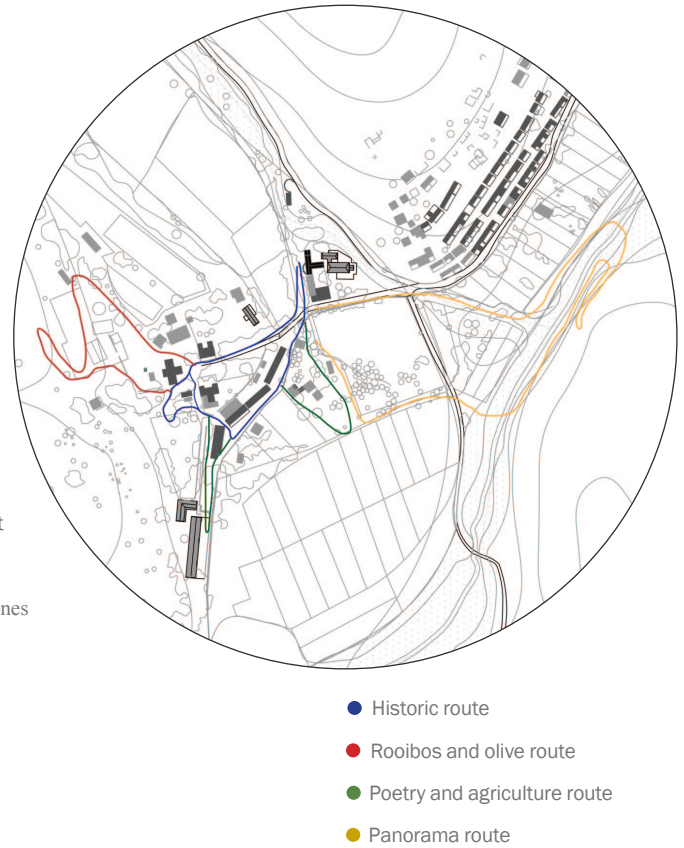


Fig. 7.20 Proposed Tourism Route (Franklin 2015)



Fig. 7.21 Nodal development along routes (Franklin 2015)

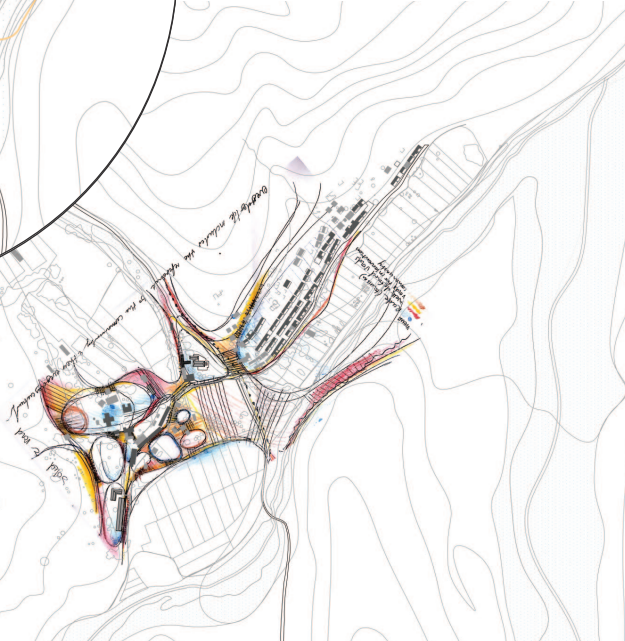
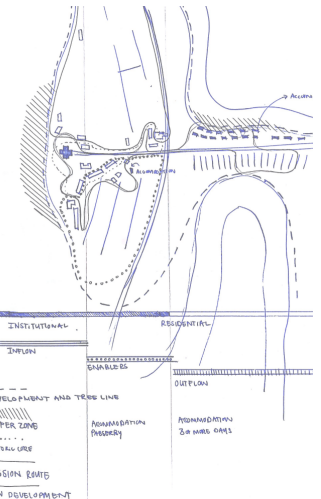


Fig. 7.22 Explorative sketch for the defining of nodes 'presence and absences' (Franklin 2015)

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WUPPERTHAL MISSION FRAMEWORK (1.20 ha)

7.3 WUPPERTHAL MISSION ROUTE MASTERPLAN

The masterplan was developed from the Mission Framework and proposed nodes along the tourism route. These nodes are mostly as a result of the facilities needed for the residents of Wuppertal as discussed throughout the development of the framework. This set of concept development sketches responds to some



Fig. 7.23 Werf-like layout of the buildings in Wuppertal (Franklin 2015)

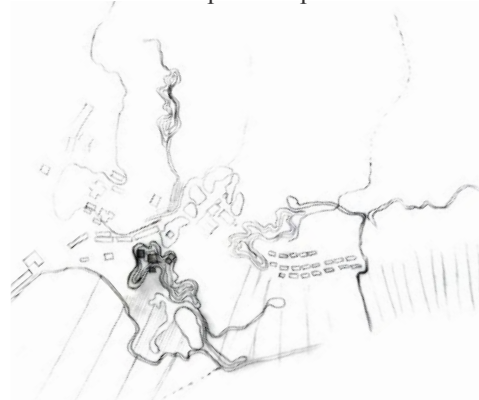


Fig. 7.24 Reaction to the incoherent layout of the buildings (Franklin 2015)

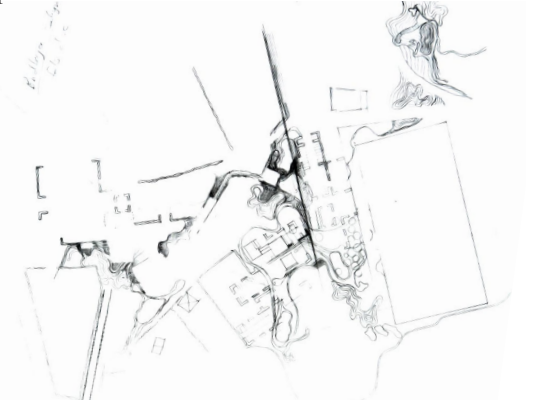


Fig. 7.25 Ordering of free forms (Franklin 2015)



Fig. 7.26 Design development of masterplan (Franklin 2015)



Fig. 7.27 Structuring lines derived from the existing condition (Franklin 2015)

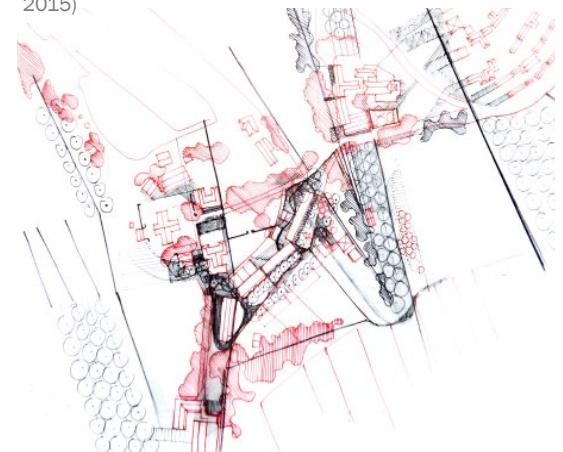
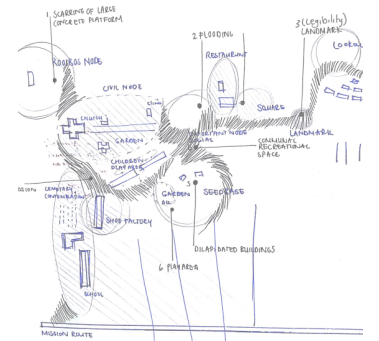


Fig. 7.28 Intuitive sketch (doodle as overlay for masterplan) (Franklin 2015)



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MISSION ROUTE MASTERPLAN (20 ha)

Fig. 7.29 Masterplan development (Franklin 2015)



Fig. 7.30 Wuppertal Mission Framework, existing plan with ordering device (Franklin 2015)



Fig. 7.31 Explorative rooibos platform model (Franklin 2015)



Fig. 7.32 Cut into steep slope (Franklin 2015)



Fig. 7.33 Rooibos drying platform investigation (Franklin 2015)

of design challenges within the cultural landscape. The fragmented nodes and the *werf*-like positions of buildings in Wuppertal added an unusual layer to the design. Conventional responses to the layout of the buildings were not possible and therefore the areas of ‘presence’ were explored as a means to bring order to the areas of absence. The ordering device (Figure 7.30) for the masterplan stems from an attempt to bring balance to the plan.

These lines are drawn from existing features within the landscape. The lines also followed an investigation for an alternative platform for the drying of rooibos tea.

A ROOIBOS DRYING PLATFORM

Rooibos drying courts are half a rugby field of concrete, usually situated on valuable agricultural fields, as the fertile valleys are often the only level area to be found. The rooibos platform was explored as a means to address the problematic buffer behind the church, and the growing need for the cultivation of rooibos in the landscape. The proposal here was to look at a way to integrate this large platform gently into the slope taking into account the minimum turning circle required for a tractor (20m). After visiting the site (due to variations in the slope) it was not suitable for the first proposal of the rooibos drying platform. Further investigation of the slope behind the church opened up a natural platform for this purpose.

B NODES

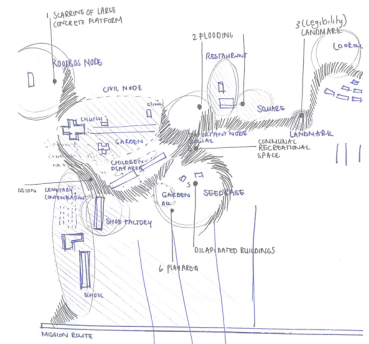
The info office is currently situated at the church. This will be moved to the commercial node to be the first point of entry for any visitor from where the historic route starts and ends. All the historic nodes ‘absences’ will be cleared from clutter and broken features restored. Most of these nodes (especially the church) is in need of a clear boundary. Here the boundary will be reinstated by means of a simple white-washed *werf*-wall.

C SEEDBASE AND CLAY TILE MANUFACTURING

A seedbase is positioned at one of the derelict area, where once the tannery could be found. This area borders the agricultural fields. The seedbase is a facility created to mainly stimulate the use of private agricultural fields (one of the most significant features of the cultural landscape). The seedbase will facilitate the buying and selling of vegetable seeds and function as an educational centre for the agricultural methods used in Wuppertal. A restaurant is proposed as part of this node to draw visitors to the seedbase. The seedbase forms part of the sketchplan and will be discussed as part of the technical investigation. A clay tile factory will also be placed in this area. In close proximity to the old foundations

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MISSION ROUTE MASTERPLAN (20 ha)

7.4 PLAN OF EXISTING CONDITION

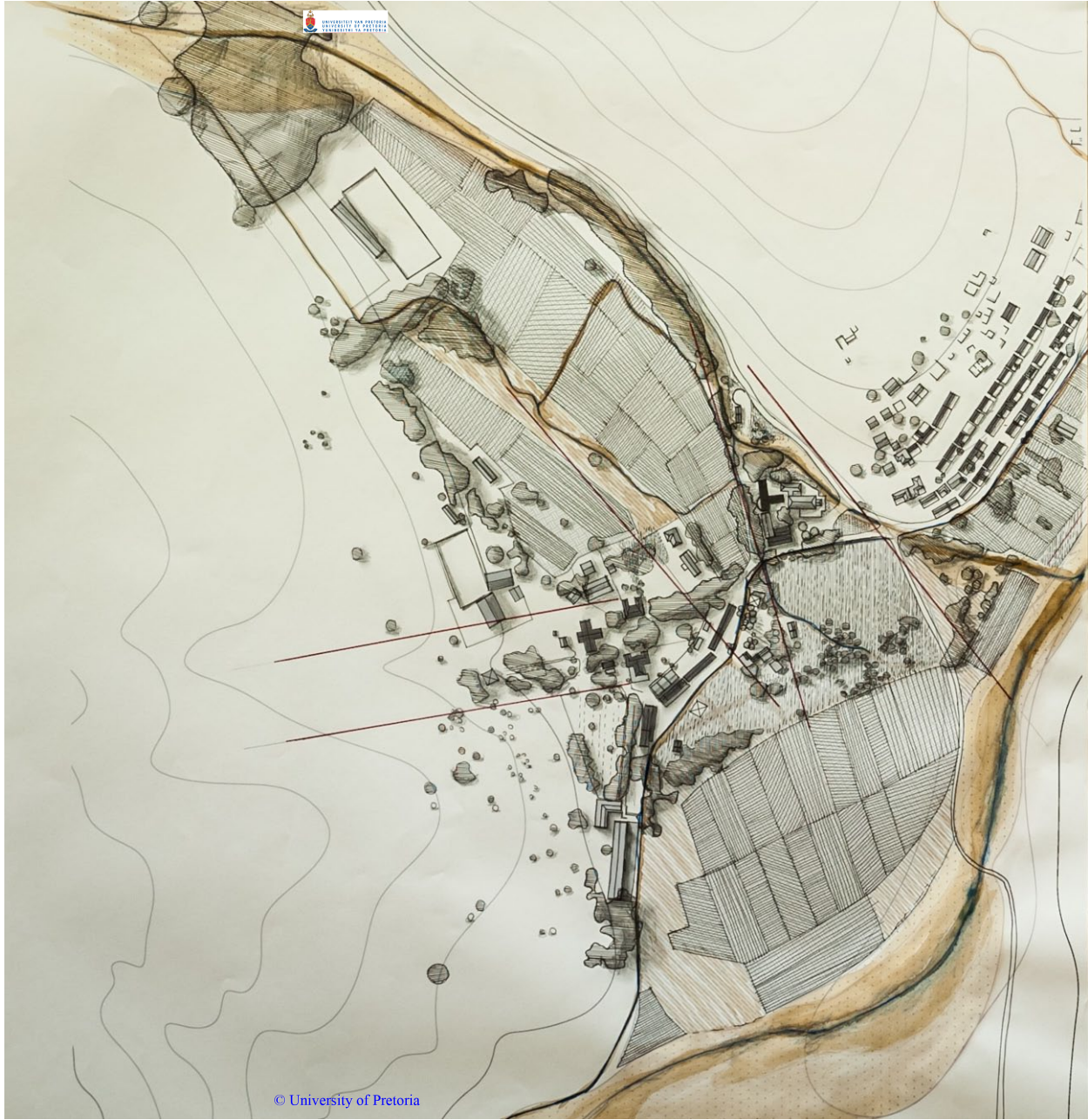




Fig. 7.34 Finding an ordering device within the existing landscape (Franklin 2015)



-  Historic structures < 1830
-  Historic structures 1830 - 1900
-  Historic structures 1900- 1965
-  Contemporary structures 1965- 2015
-  Kraal structures
-  Agricultural land
-  Water and floodline
-  Wetland

LEGEND





Fig. 7.35 Users of Wuppertal; resident, visitor, donkey (Franklin 2015).



Fig. 7.38 Hierarchy in Wuppertal (Franklin 2015)



Fig. 7.41 Gateways exploration (Franklin 2015)



Fig. 7.36 Separation lines (Franklin 2015)



Fig. 7.39 Strangeness mapping (Franklin 2015)

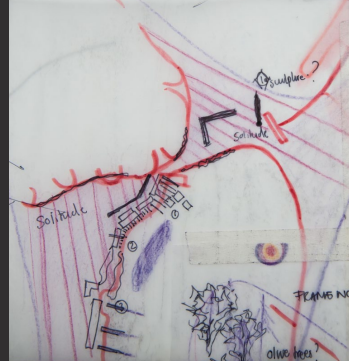


Fig. 7.42 Historic node (Franklin 2015)

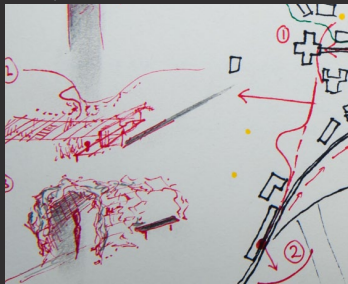


Fig. 7.37 Moment intervention (Franklin 2015)

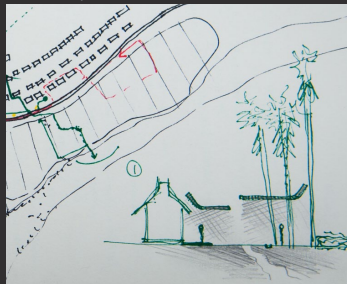


Fig. 7.40 Structure as gateway (Franklin 2015)

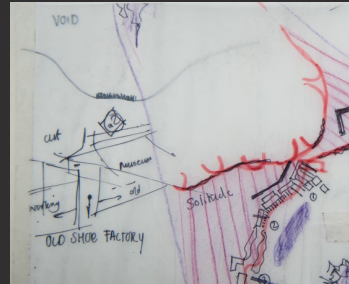


Fig. 7.43 Change in perspective (Franklin 2015)

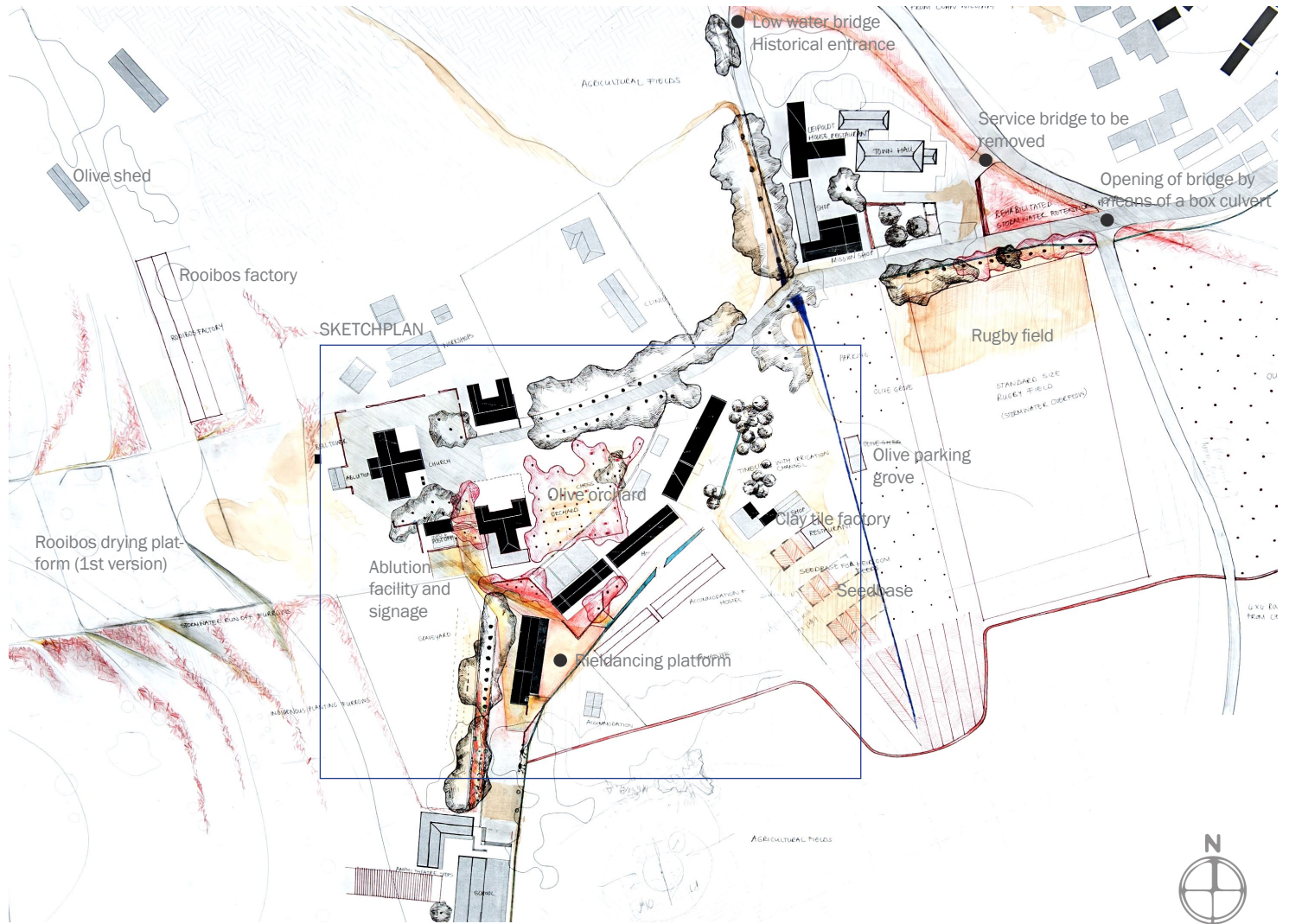


Fig. 7.44 Mission Route Masterplan Version 1 (Franklin 2015)

of the tannery, a suitable area as it once formed part of the daily working space of the town.

D Rugby field

A standard size rugby field was one of the elements proposed during an informal talk with one of the residents and a ‘parking market’ for all pay day. The standard size rugby field could be added by redirecting one of the overflow streams and the removal of some of the palm trees (*Washingtonia*’s). The rugby field will also function as an infiltration basin for the 1:100 year flood. The cut of the rugby field is used for fill of the parking area. The parking area proved to be a good solution to absorb a potential increase in tourism numbers, ensuring that the cars do not crowd the town entrance.

E Bridge structures

An obstruction in the open channel caused the flood events to occur much sooner, even at the 1:2 year flood. The proposal includes the removal of the added service bridge and rather include a low water bridge more appropriate to the historical entrance to the town . The bridge connecting the residents of Wupperthal to the historic town also needs to be opened up. Here a concrete box culvert is proposed to open the channel to its original size that allows for the 1:50 year flood to drain freely. This concrete culvert must be cladded with rock to fit into the cultural landscape.

F Olive grove

The olive industry has been introduced to the Greater Wupperthal Area Framework. Olive groves are introduced to the historic town to fulfil both a ordering as well as productive function. The parking grove is proposed with the use of olive trees and the historic fruit orchard of the rectory to be re-instated with a olive grove. The olive shed will facilitate the pressing of olive oil and processing of table olives and form part of the productive route in Wupperthal.

G Rieldancing platform

The rieldancing platform is part of the public open space in Wupperthal and the accentuation of the old shoe factory. Here the rieldancing platform, only a bare patch of soil will be framed with a raised edge enabling this area to function as a sedimentation basin for stormwater before it is released into the irrigation channel through a series of weepholes. The rest of the public space is provided with gathering areas under trees as part of a time line that tells the story of the intimate relationship between man and nature in such an isolated area (see sketchplan in the next chapter).

H Interpretation centre

The interpretation centre is situated next to the post office. This also forms part of an area in Wuppertal which is vital link for a circulation route. This link is currently the sloped backyard of the rectory and post office with signs of erosion. The backyard includes the functional components added to the historic building such as an ablution facility and shed. The response to these structures will be discussed in detail in the technical investigation chapter. Here a new structure will allow these functions to be integrated into historic fabric with the use of contrasting material showing the new additions. This structure will accommodate signage panels as part of the interpretation centre.

7.5 WATER STRATEGY

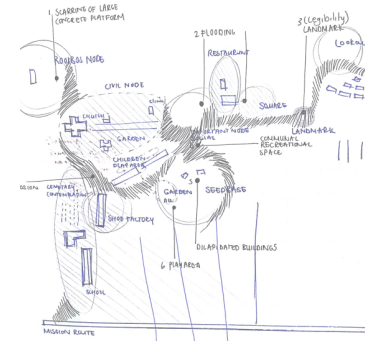
Water is the lifeblood of Wuppertal, the one element that enabled a community to settle in such isolation. Water from two perennial streams are intercepted and used for the irrigation of the agricultural fields before it is released back into the Tra-tra river. Four main aims for water strategy is discussed in the following pages.



Fig. 7.45 Water in Wuppertal (Franklin 2015)

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MISSION ROUTE MASTERPLAN (20 ha)



Fig. 7.46 Service bridge (Franklin 2015)



1. Management of occasional flooding

- Removal of service bridge
- Installation of low water bridge at historic entrance
- Implementation of concrete box culvert cladded with rock at bridge connecting to residential area



Fig. 7.47 Redirection of overflow stream (Franklin 2015)



2. Redirection of overflow stream

- Rugby field to function as 1:100 year flood infiltration basin
- Redirection of stream to form edge between seedbase and parking area



3. Treatment of greywater from ablation facilities.

- Separation of greywater and blackwater
- Greywater system to flow through a series of wetlands for cleaning
- The testing of plants endemic to the Cederberg for use in the wetlands



Fig. 7.48 Ablution facilities in Wupperthal (Franklin 2015)



4. Erosion control

- Erosion control for surface runoff to form part of the planting strategy



Fig. 7.49 Erosion next to post office (Franklin 2015)

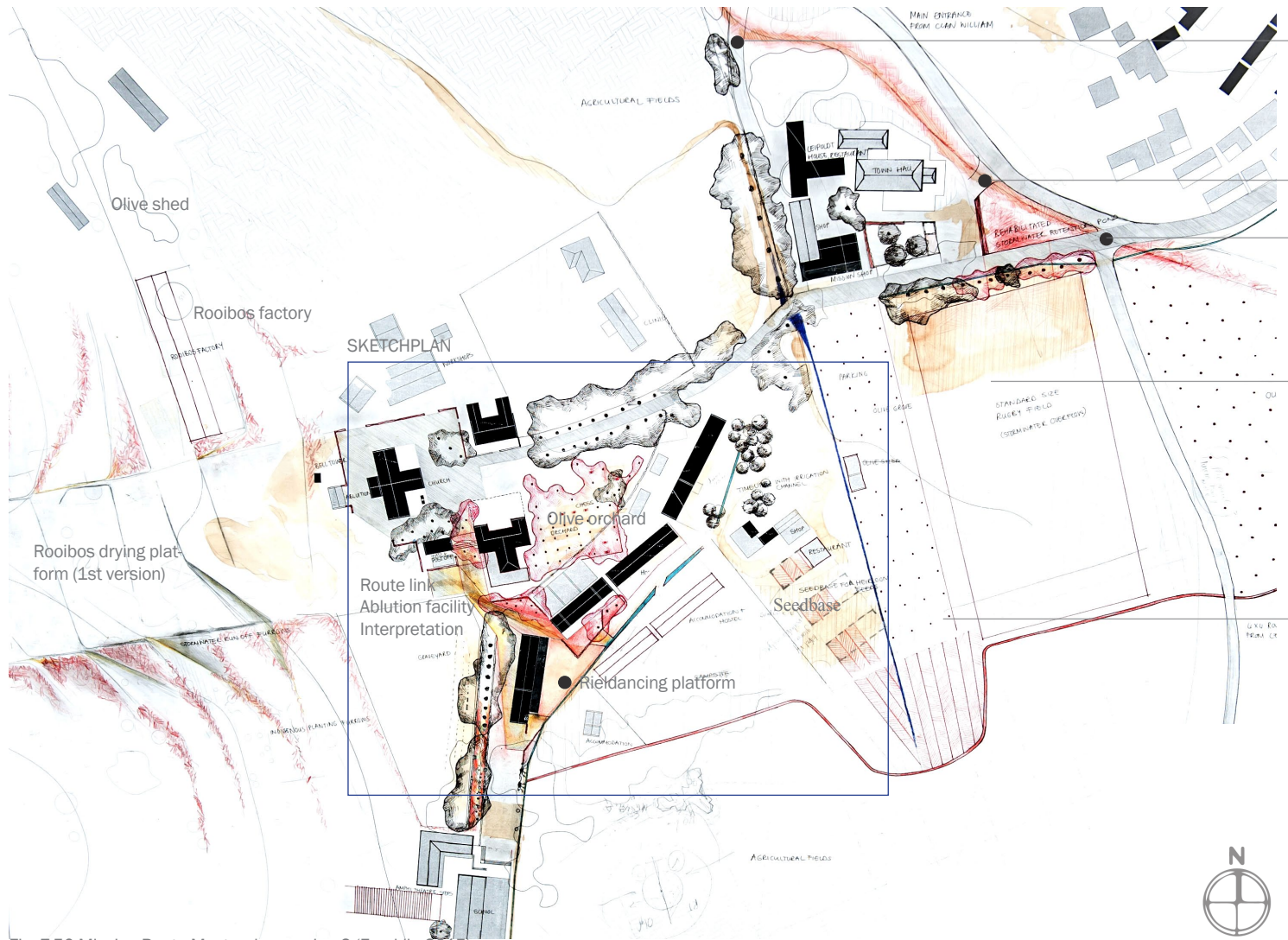
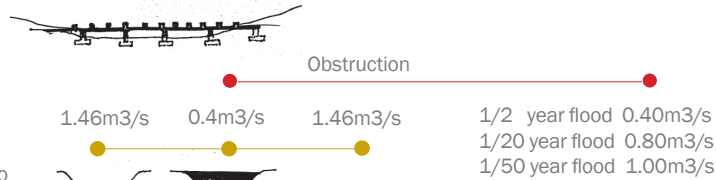


Fig. 7.50 Mission Route Masterplan version 2 (Franklin 2015)

Proposed low water bridge to re-appropriate historical entrance to Wupperthal



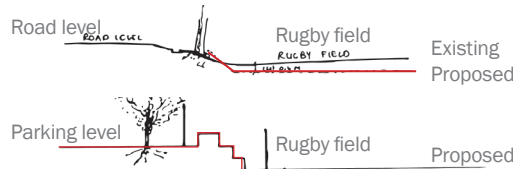
Service bridge (obstruction) to be removed



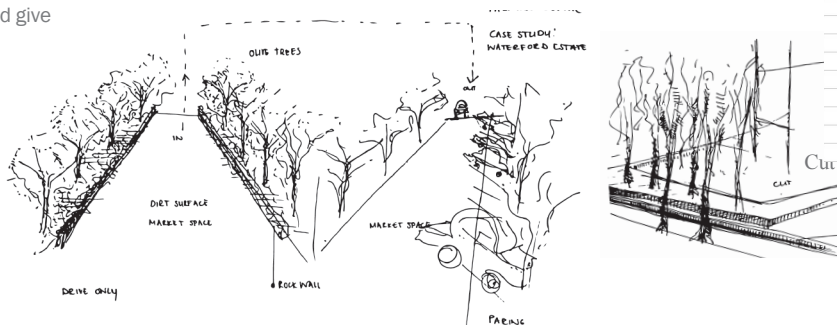
Opening of bridge by means of a box culvert



Standard size rugby field (Flood retention incorporated in level changes)



Olive parking grove (Productive plants to define spaces and give shade)



1/2 year flood (m3)	second	0.40	m ³ /s
1/20 year flood (m3)	second	0.80	m ³ /s
1/50 year flood (m3)	second	1.00	m ³ /s
Current Channel (OPEN)			
Hydraulic Radius (Rh=A/P)			
Cross sectional area flow	A=bh	2.00	m ²
Wetted perimeter	P=2h+b	4	m
	Rh	0.50	m
Current Channel (PIPED BRIDGE)			
Hydraulic Radius (Rh=A/P)			
Cross sectional area flow	A=nD ² /8	0.25	m ²
Wetted perimeter	P=nD/2	2.512	m
	Rh	0.10	m
	2x pipes	Rh	0.20
V=(1.486/n)r ^{0.67} *Vs			
manning coefficient	n	0.03	
Hydraulic radius	Rh	0.50	m
slope	s	0.0006	m/m
V=(1.486/n)r ^{0.67} *Vs	v	0.73	m/s
Q=Va			
Q	Q	1.46	m ³ /s
V=(1.486/n)r ^{0.67} *Vs			
manning coefficient	n	0.03	
Hydraulic radius	Rh	0.20	m
slope	s	0.0006	m/m
V=(1.486/n)r ^{0.67} *Vs	v	0.40	m/s
Q=Va			
Q	Q	0.40	m ³ /s

Cut		
Rugby field	a	9800 m ²
depth	d	0.4 m
Soil volume	v	3920 m ³
Fill		
soil volume	v	3920 m ³
Parking and olive grove	a	4200 m ²
depth	d	0.9 m

Fill

7.6 ROOIBOS DRYING PLATFORM



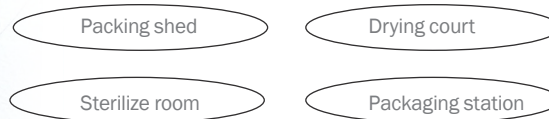
Aspalathus linearis
Rooibos



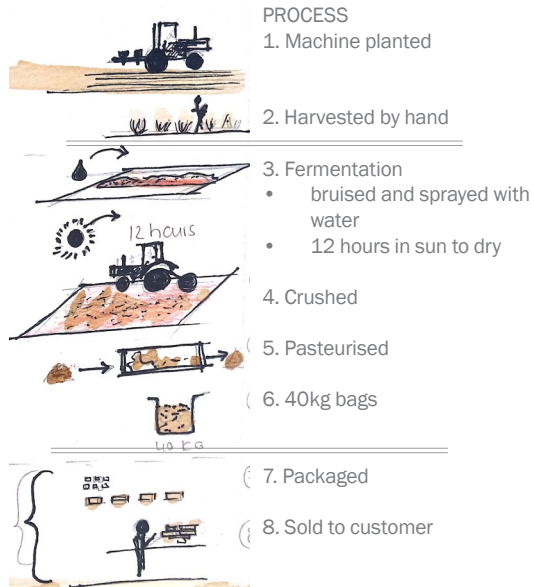
Fig. 7.51 Existing rooibos drying platform (Franklin 2015)



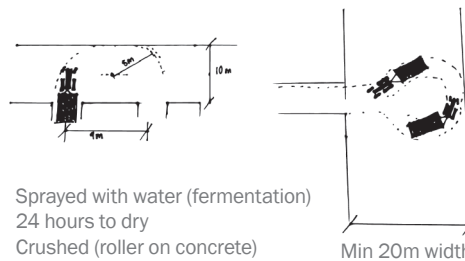
Fig. 7.52 Natural platforms on slope (Franklin 2015)



Rooibos factory



Rooibos drying platform



1/2 year flood (m3)	24h	115.94
1/20 year flood (m3)	24h	231.87
1/50 year flood (m3)	24h	289.84
1/2 year flood (m3)	second	0.03
1/20 year flood (m3)	second	0.06
1/50 year flood (m3)	second	0.08

The calculations done for stormwater runoff from such large platform proved not to be a problem for the month of the highest rainfall of 58mm spread over the entire month. Provision will be made for the runoff from a single flood event of 58mm.

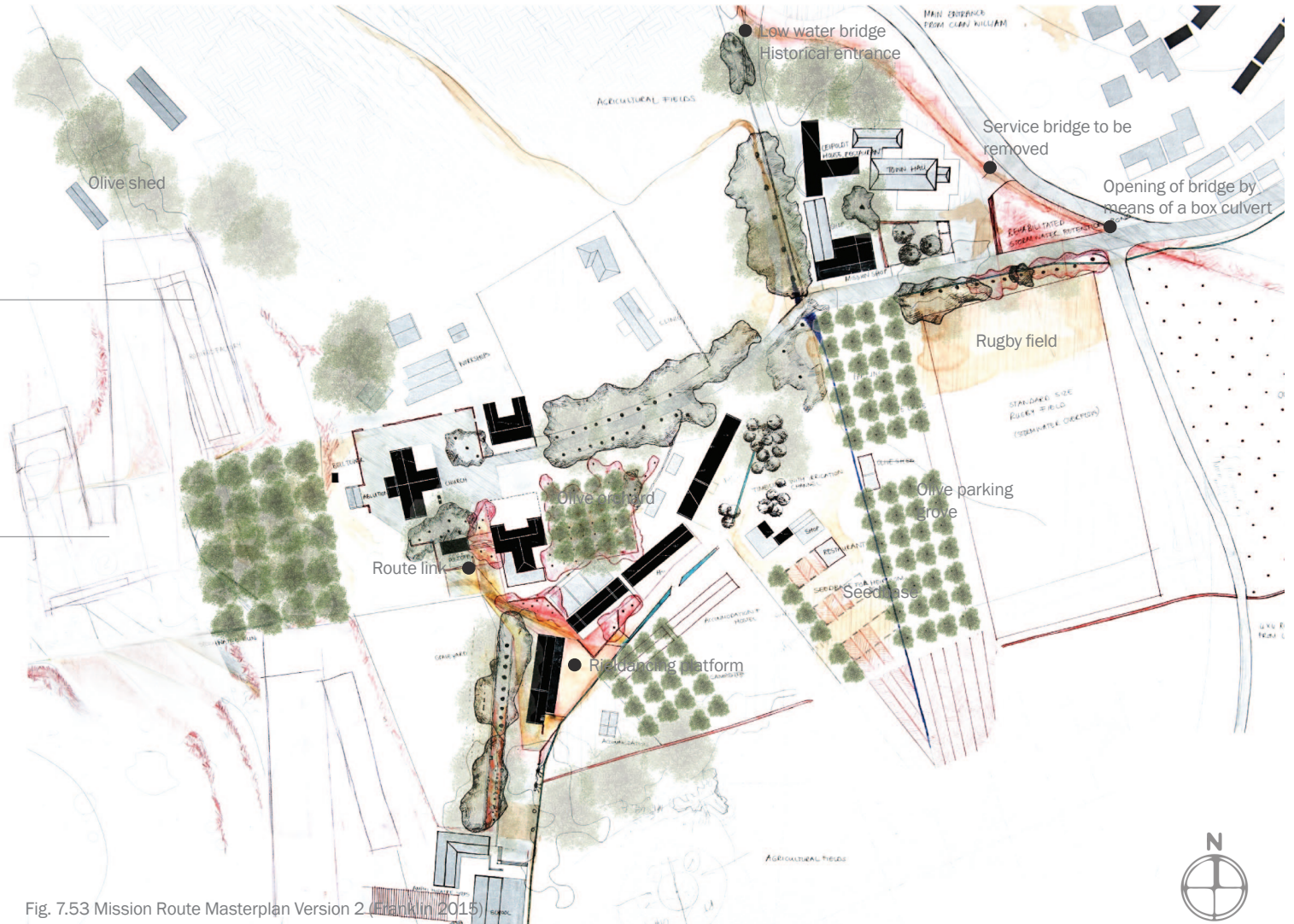


Fig. 7.53 Mission Route Masterplan Version 2 (Franklin 2015)

7.7 FINAL MASTERPLAN



Fig. 7.54 Final Masterplan (Franklin 2015)



- Existing
- Proposed
- Re-appropriated

LEGEND



7.8 SKETCHPLAN DEVELOPMENT

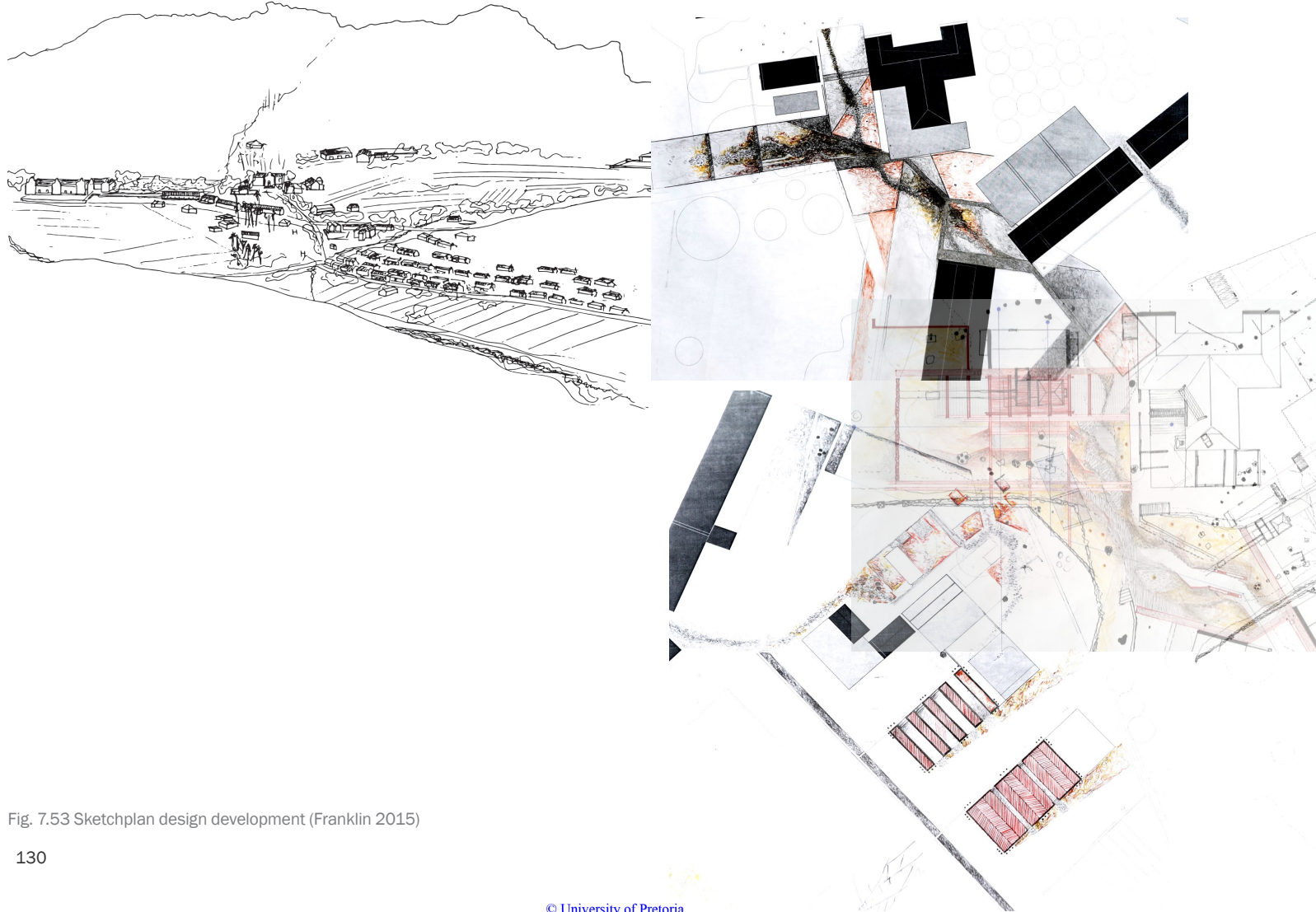


Fig. 7.53 Sketchplan design development (Franklin 2015)

