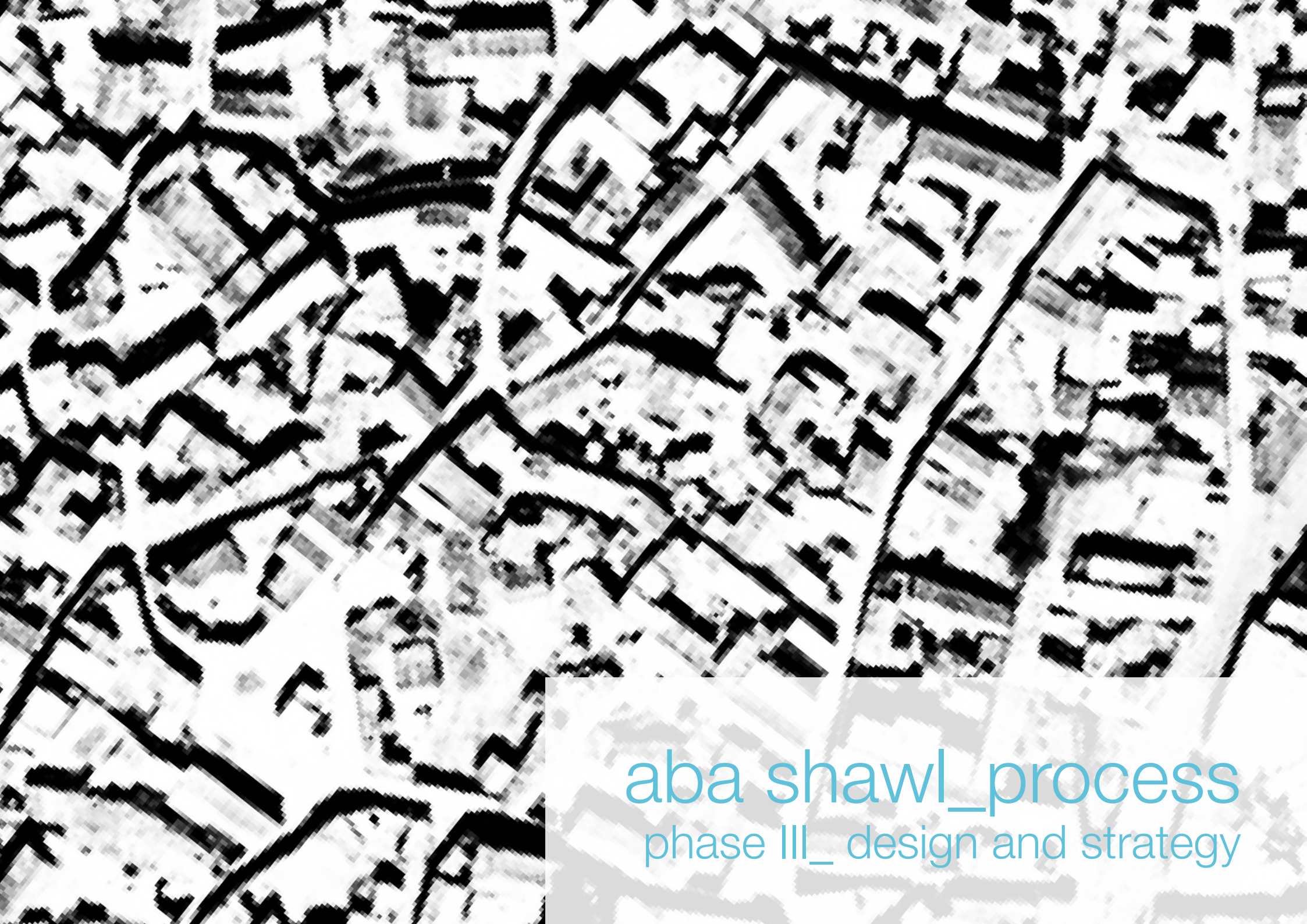


aba shawl_process

phase III_ design and strategy

The process itself has been essential to us, as it is such an important part of the end product. The many meetings and new acquaintances have pointed out the direction the project has taken, so it is therefore valuable to document this in order to understand why the end result is what it is. This process has taught us a lot, and we will try to present the experiences and the lessons we have learned in these process reports. We also wish to show our work method and approach, as this can function as inspiration to the workers at DoI. We have split the report into three parts; before, under and after the second trip.

When starting with the project we did not know much about what we were actually going to do. Phase one started therefore with trying to understand the challenges and possibilities in Aba Shawl, and how we could shape a project around them. The result was a sketch project, which we presented and discussed in Asmara.

In phase two we went to Asmara. This phase was very exciting, and consisted of meetings with different people, site investigations and redefining our project every day. Especially the meetings with DoI were important, as we could discuss what we had so far and together look at the further development of the project.

Phase three was spent on developing the ideas and suggestions we had gotten in Asmara, and getting them in a proper system. Then, to illustrate how the new systems could work, we designed a proposal for the key parts of the area.

reflections

After the second trip to Asmara we started to get a firmer grip on our project and the direction it had taken. We had discussed it both with people working on the same themes as us, and the workers at DoI, and started to look at it more and more as a strategy project. The main challenge we have had is our own desire to actually design something, to work with architecture as we have previously worked with it. In the start-up phase we pictured the end result as detailed drawings on a grand water tower or similar, but during the course of this project, we have gradually recognized that it is possible to work with architecture in a different way of what we are used to. Forming a robust and complete strategy ended up being the main focus, while the actual design of buildings has been given less priority. The buildings and their architectural design are of no importance, if the system it is put into does not function. Still, we felt a need to concretize and give a suggestion of what our strategy could generate in forms of building volumes, resulting in Wedgan Square and Mai Hill. Hopefully this will inspire DoI to develop the area even further.

Our eagerness to design new spaces and buildings have also been challenging in terms of overdesigning. We have been close to forgetting the context we are working in. With fewer resources available, it is important to make simple solutions that easily can be carried out. But at the same time the desire to inspire and make something new and great is big. Also, working a lot with strategies and not designing made us a bit impatient to start the design process and therefore we were a bit quick to plan quite a high level of interventions. Something might function in a formal way and have the possibility of becoming good architecture in one situation, and then be totally wrong in another setting. We have found ourselves having a "finished" project that we have had to strip down or reject after taking a second round and reflecting on how it fits with the bigger picture. Our assignment has been about doing small interventions and finding robust strategies for a future development based on the needs of the population today. At the same time there is a line between making everything very realistic and feasible, and focusing on inspiration and setting your own guidelines in your own master thesis. The balance between these has been challenging. In the end we found that our strategy could provide the guidelines we needed in the design process.

The program for the different sites have as a consequence of this changed very much in importance and program.

The water tanks at Mai Hill started out as the most important part of the project, but as we wanted to make our project more robust we have broadened our field of study. We wanted there to be a stronger connection between the residents' effort and what they actually were getting back. Of this reason, the focus shifted away from Mai Hill and to the upgrade of the streets and backyards, and the operation central. The ripple effects of the water tanks are more important than the water tank itself.

street upgrade

background

Aba Shawl is an important part of the history of the city of Asmara. Aba Shawl can be found on maps dating back to 1906 and you can find families that have been living there for more than 130 years. But this part of Asmara is probably even older, and much of the street network has been left untouched in all these years.

During the colonial time under Italian rule, the city of Aba Shawl was a part of what was called the indigenous zone. The city plan made in 1908 and then later in 1938, took into account the pre-existing social and physical conditions in the city, but was still affected by a development policy based on racial segregation. In some ways Aba Shawl is therefore a remembrance of a difficult time. In contrast to the other parts of the city, it was left unplanned and neglected. With no urban planning, architecture or provision of services, it evolved in a different way than the rest of the city. No formal street plan or infrastructure existed to ensure sufficient health care, communication, education or sanitary facilities for the inhabitants. Lack of running water in the houses, unpaved streets, and no electricity were all facts. Buildings of mud, stone and occasionally brick were arranged randomly due to lack of planning and regulation. However, the buildings were usually maintained impeccably by their owners.

The district is still Asmara's poorest area and has been neglected by the following administrations until the independence of Eritrea. However, the fact that these native quarters still exist together with the European part of Asmara, gives the city its unique identity.

In recent years, Aba Shawl has also been where many of the freedom fighters has grow up, and this gives it an important role also in the more resent past of the city's history.

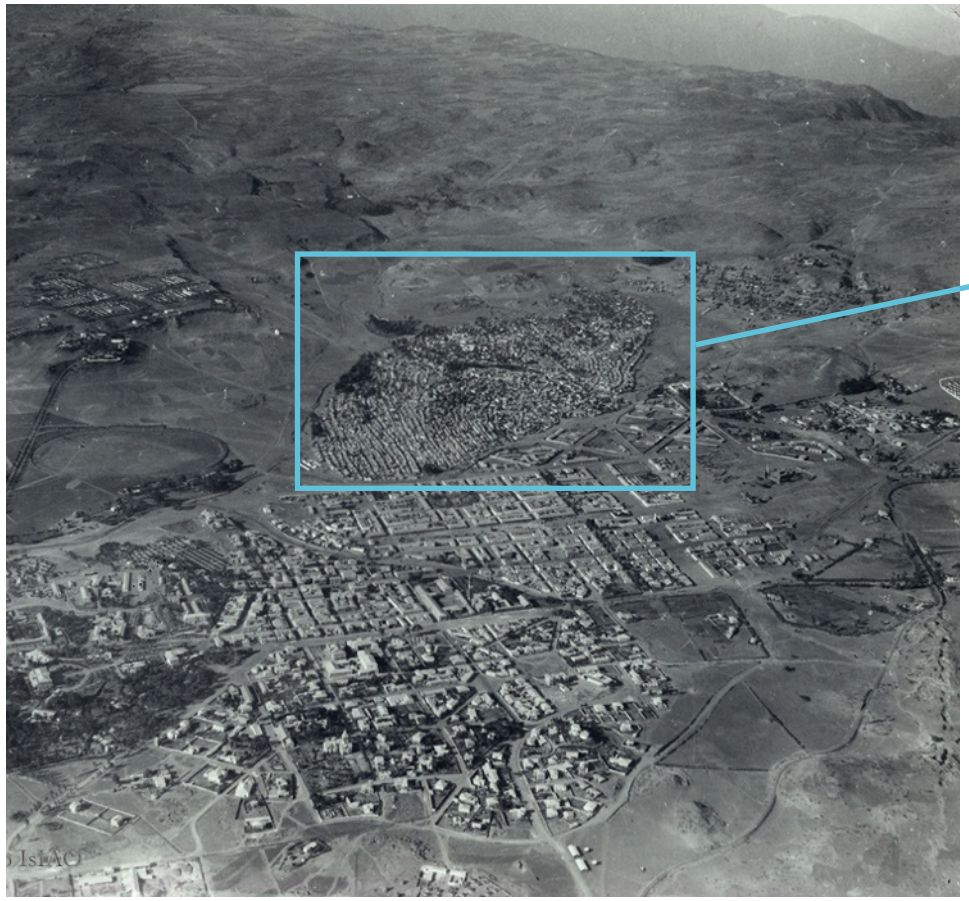
Asmara is understandably a city eager on developing. Poverty is still a big problem and a major part of the city's population lack basic infrastructure and proper facilities. It is important to have this in mind, and be realistic when making the priorities of the future urban planning of Asmara and Aba Shawl. Eritrea has the chance to learn from other countries where irresponsible planning has taken place, with decisions not properly thought through (Asmara: Africa's secret modernist city). It is said that the best way of creating wealth, is by developing human settlements in a sustainable way (Asmara: Africa's secret modernist city), and this can be an important aspect in the future development of Asmara.

what is it in Aba Shawl that is important to keep?

The curving and narrow streets are the historical base in Aba Shawl, while the houses and backyards have been gradually rebuilt and upgraded. They are in constant change as families grow, new generations take over and people move. However, you can still find examples of the traditional housing typology hidmo and the round agdo, the agdo also influencing the shape of the streets. Meanwhile, the structure of blocks and streets are kept untouched and is the most visible sign of the history of the city.

It is very important to increase the accessibility in Aba Shawl. Today, it is very difficult to get things in and out of the area, such as water, waste and ambulances. The fire safety is also very bad and it is absolutely essential with some kind of upgrading to improve the living conditions for the inhabitants.

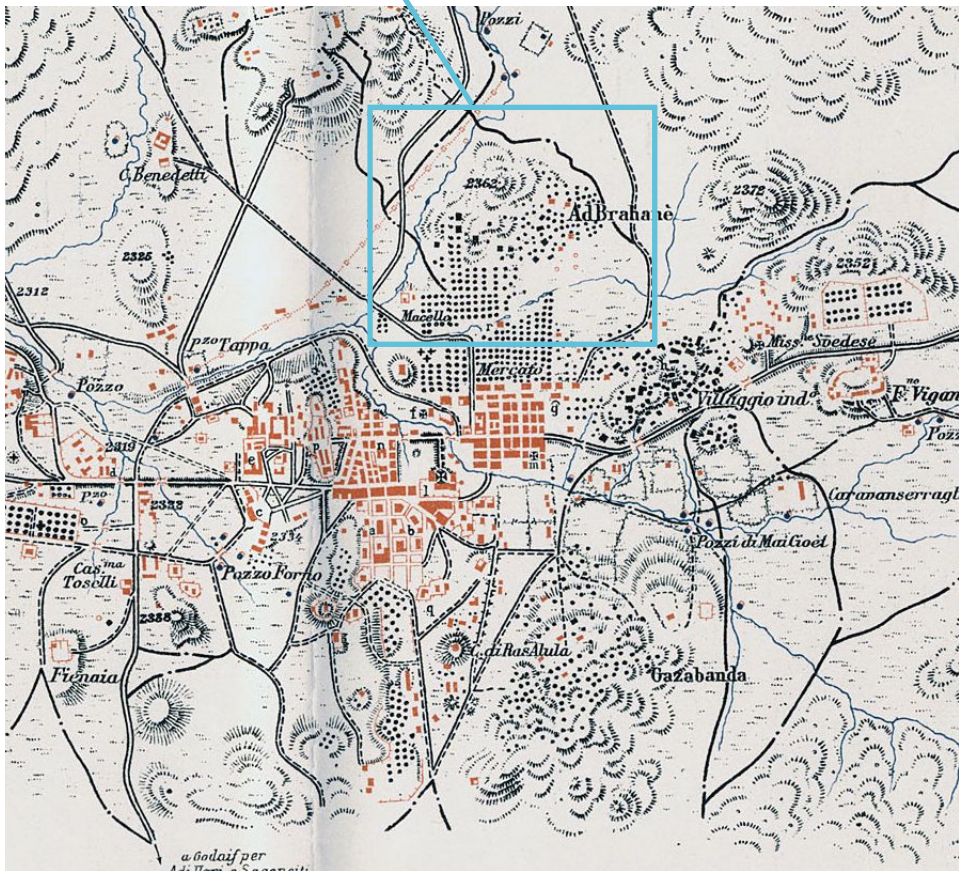
Also, Aba Shawl consists of a complex social structure and it is crucial to disturb these structures as little as possible.



Asmara ca 1930

Aba Shawl

Plan of Asmara, 1906

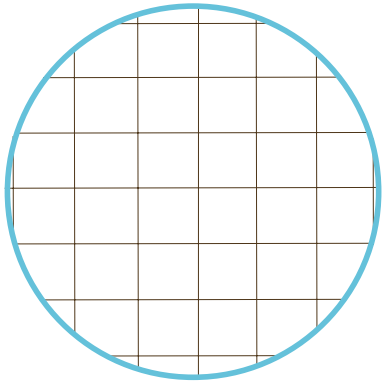


3 possible strategies

1_taring down everything and rebuilding

+ will upgrade the entire area and all the houses
+ can get good accessibility
+ can plan public spaces, public functions and so on, and this can be a basis for economical growth

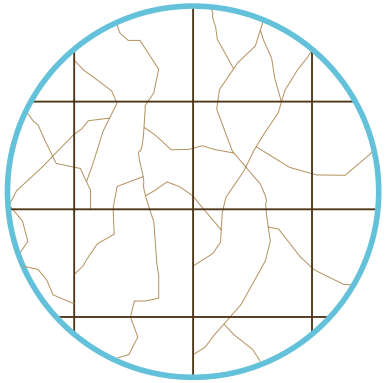
÷ loose the character and identity of the city and a part of Asmara's history
÷ not environmentally friendly
÷ everyone has to move (at least for some time)
÷ disturbs the social life of the inhabitants
÷ this strategy has already been tried out in former unplanned and has been regarded as unsuccessful
÷ the street life in former unplanned area is quite empty



2_adding a few access roads

+ can keep some/a part of the history of the city
+ better accessibility
+ can get more public spaces
+ more robust for further development of the area
+ more natural moving process for most people
+ you don't need to move more people than there is still possible to find a new site for them in the neighbourhood

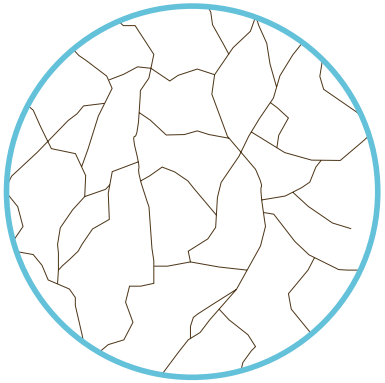
÷ you will have to tear down some buildings
÷ not 100 % accessibility
÷ might not be possible with flush toilets
÷ can to a certain degree be a slow process
÷ does not ensure a better quality of life and better houses – higher standard



3_keeping the existing street network

+ has an historical value
+ can keep the street network while the houses are free to change
+ keeps the social structure
+ can regulate a more natural moving process than when having to move people "by force"
+ more environmentally friendly strategy
+ keeps the human scale in the area

÷ the accessibility for cars is very bad
÷ might not be possible with flush toilets, and this can be regarded as negative since that is a part of what they regard as western standard
÷ it can be a very long process before they get more space and better housing standard
÷ people living in Aba Shawl deserves better space and a better living standard
÷ the process in former unplanned gave people the same space and equal living conditions?
÷ there is little space for new public functions
÷ "don't keep the man in the jungle for us to look at"



conclusion

_Strategy 01 points out as the one with the most negative consequences. It has a big impact on the inhabitants and the existing structure. In addition it totally destroys the historical base of the area. Both strategy 02 and 03 are more in line with today's urban development theories and maintains more of the qualities found in the area today.

We have chosen to look into a strategy that is a mix between strategy 02 and 03. We want to keep as much of the existing street network as possible, but we also want to increase the accessibility in the area. We take it as a starting point that other means of transportation can solve a part of the problem, as it does in many old medieval towns, such as San Gimignano in Italy or Gamla Stan in Stockholm, Sweden. Some houses must probably be moved, but the degree of impact on the inhabitants can be kept to a minimum.

It will also be possible to add a water distribution network in the existing streets, which will increase the living conditions for the inhabitants. Getting a better housing standard can happen gradually, especially if one facilitates a development where the inhabitants will create and get more resources.

Which parameters are the most important ones? What decides what method to use?
_accessibility
_social factors
_keeping the history and identity
_ownership arrangements
_sustainable development

You can find many medieval cities that has had many of the same challenges as Aba Shawl, but that has managed to handle most of them and which is today very popular and regarded as an important part of a cultural heritage

what

We want to find streets based on the existing network in Aba Shawl where it is possible to add pipes for water and sewage. We choose one of these streets where we look at how this can be solved technically. At the same time we will also upgrade the standard of the street cover and add a handling system for rainwater. This will increase the accessibility in Aba Shawl, which is of great significance. Along the street there are several open spaces that has the potential to become attractive public spaces. We will look at the upgrading of these and place public functions connected to them. This involves ground cover, shade, light, rainwater handling and vegetation.

The structure of Aba Shawl is based on blocks along the streets and these are divided into backyards. Each backyard can be shared by up to ten families, each having their own little house or a small room. We will look at how they within one such backyard can handle the black water, solid waste and rainwater. We already know that many families have been living in Aba Shawl for so long that they have been upgrading their properties generation by generation. We take it as a premise that this development will continue and that there will be a natural step-by-step development where fewer families will share one backyard in the future.

We will not look at any upgrading of private households, since this means getting into social structures we have no basis for understanding.

accessibility

A part of giving people in Aba Shawl an easier life and a bigger possibility of developing further, is to increase the accessibility in the area. A part of this is to change the street cover and formal intervention. Another important aspect is that this can be a part of solving a lack of service and give economical growth. Upgrading the street network is also to upgrade public spaces. This will increase the esthetical value of the area, but also give the inhabitants the possibility of socialising outside their private home.

backyard

Since we purpose not to add the black water to the sewage system, the black water has to be handled in different way. This can be either in the private house hold or in sanitary stations. To have an increased status and living standard, we choose to lock at how it can be solved within every backyard.

Today, the rainwater is a big problem in Aba Shawl. It floods the streets, digs deep ditches into them and makes it difficult to walk there. Since much of the Aba Shawl is built-up area and backyards, a lot can be done in private backyards to prevent the streets from flooding. In addition, the rainwater can be a great resource if collected right. Simple principles can easily be carried out with great benefit in some parts of the year.

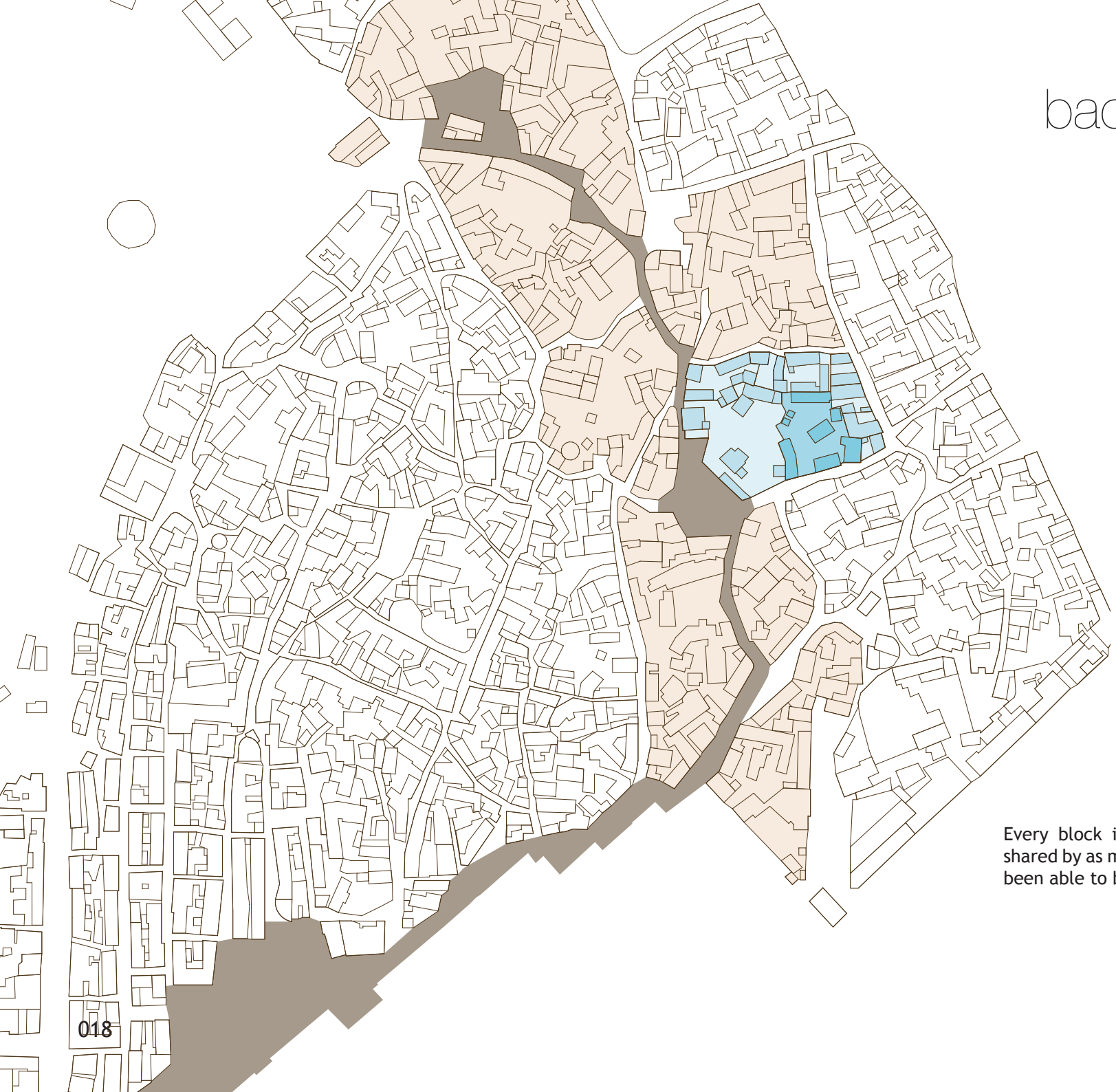
buildings_1:2000

Just locking at a map over the buildings in Aba Shawl can make it look very chaotic. Is there a order in the chaos?

blocks_1:2000

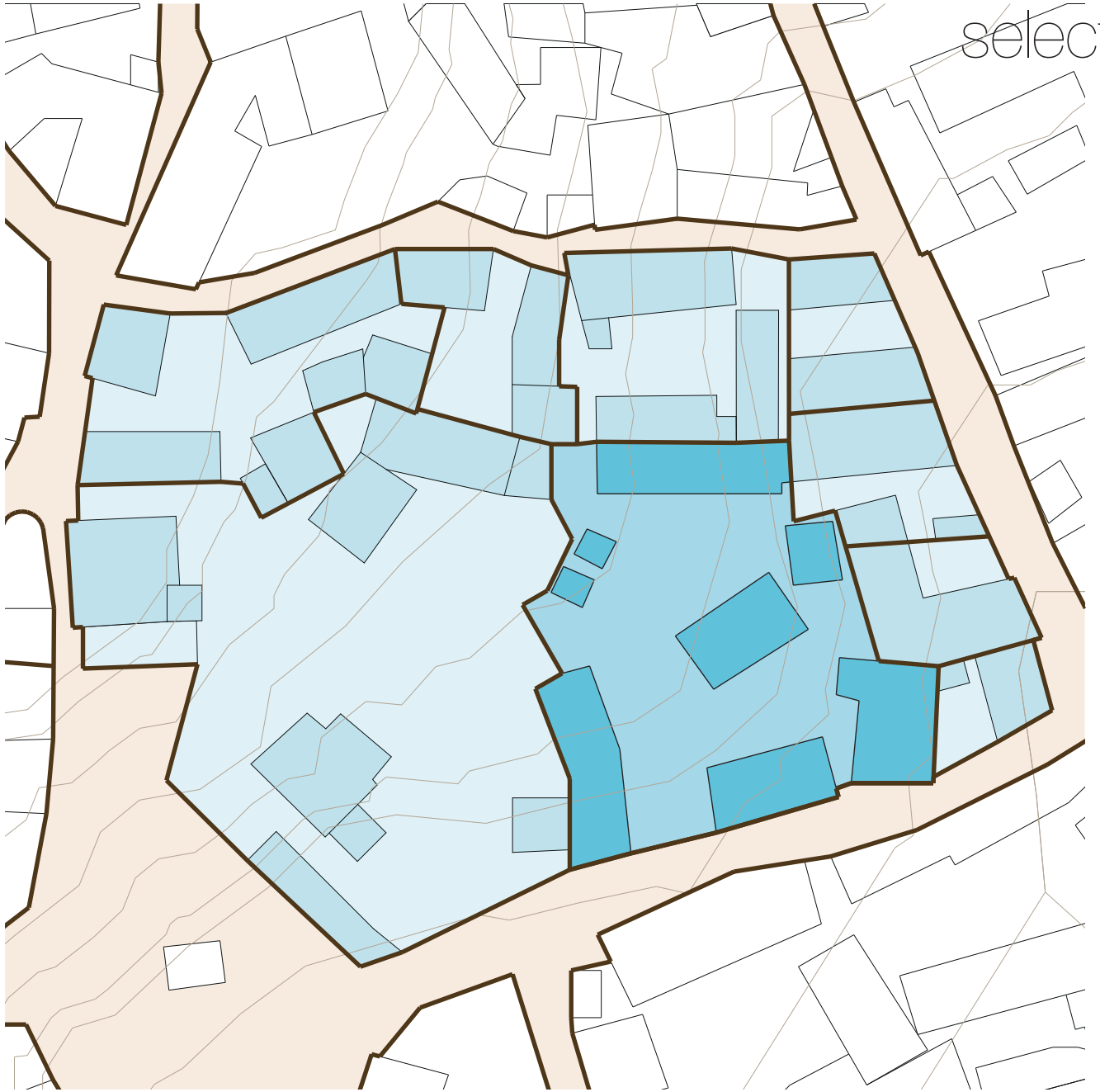
Looking more closely, you realise that Aba Shawl is structured in blocks. Most blocks are facing what you can call a main street in the north-south direction, while you have side streets going east-west.

backyard_1:2000



Every block is divided into backyards that can be shared by as many as ten families. A few families have been able to build a house with a private backyard.

selected backyard_1:500



The houses often have one facade facing the street. They lie in an irregular pattern and the fences are used as a mediator between them, making a continuous street.

We have selected one block that we want to go further into and use as a case study for finding solutions that can be used in the blocks in the rest of Aba Shawl. We were able to visit one of the backyards within this block and can use this backyard to illustrate the principles we suggest.

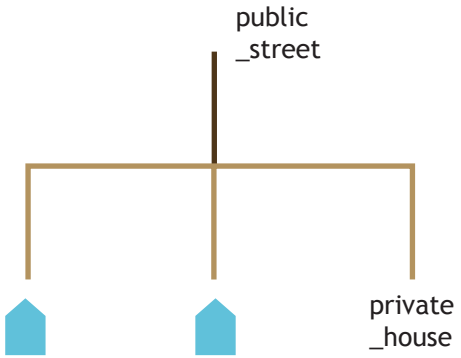
social structures

The social structure of Aba Shawl is to complex for us to try to understand or interfere with in our project. Most families live in their own house, but share a backyard with up to ten other families, while some families has upgraded to one family housing in their own backyard.

The social aspects of the shared backyard seem to be very important to the women and children living there. Often, they share the responsibility of looking after the children and can even have a common kitchen. It gives a sense of security in addition to strong social relations. They depend on each other in their daily life. Interfering with this net of social structures by for instance suggesting new guiding rules for the development of these backyards is not something we feel we have the competence to do. The only thing we can say is that it is of great interest for the inhabitants to keep this network and that moving people by force is to remove them from their safe social setting/environment. Families that have to move should be relocated in the local area and get compensation in form of bigger plots.

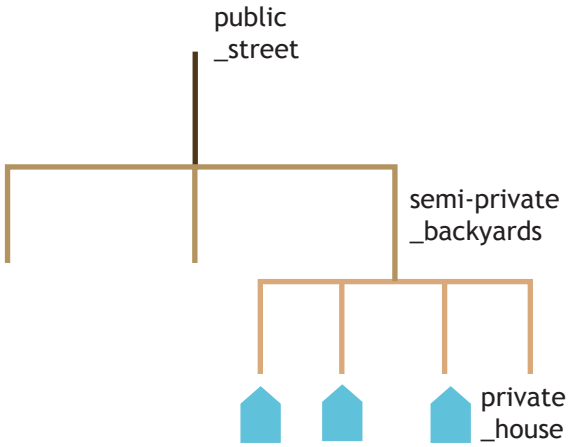
In Aba Shawl, people own their own land and have rights when it comes to regulating the area.

low cost housing



The DoI has suggested a type house for low cost housing that can be implemented in Aba Shawl. This suggestion has a plot of 7m x 10 m with a built area of 48 sqm. It is based on a quite rigid system, and does not aim to preserve the social structure in the area or give room for keeping the complex net of curving streets. You access your home directly from the street into a private backyard or your house.

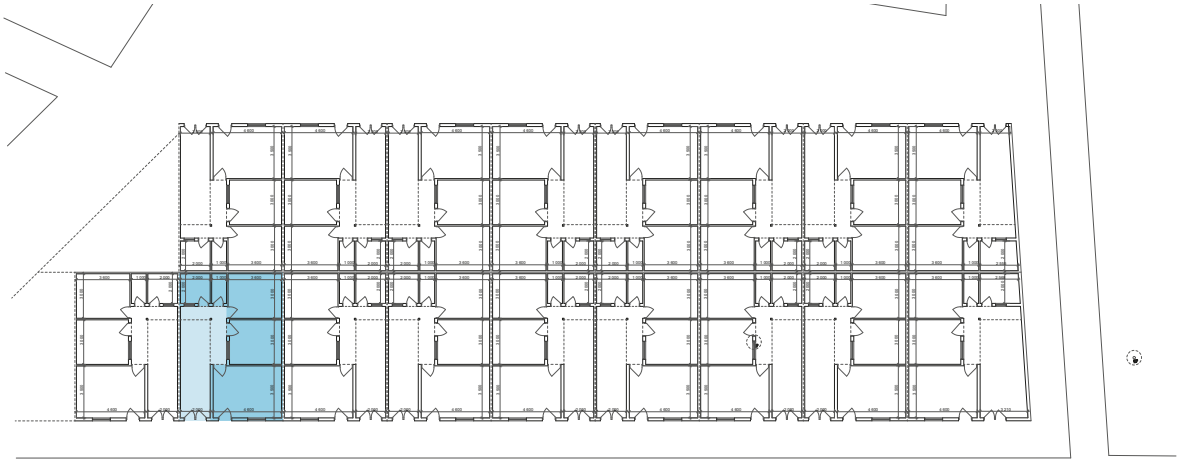
existing social structure



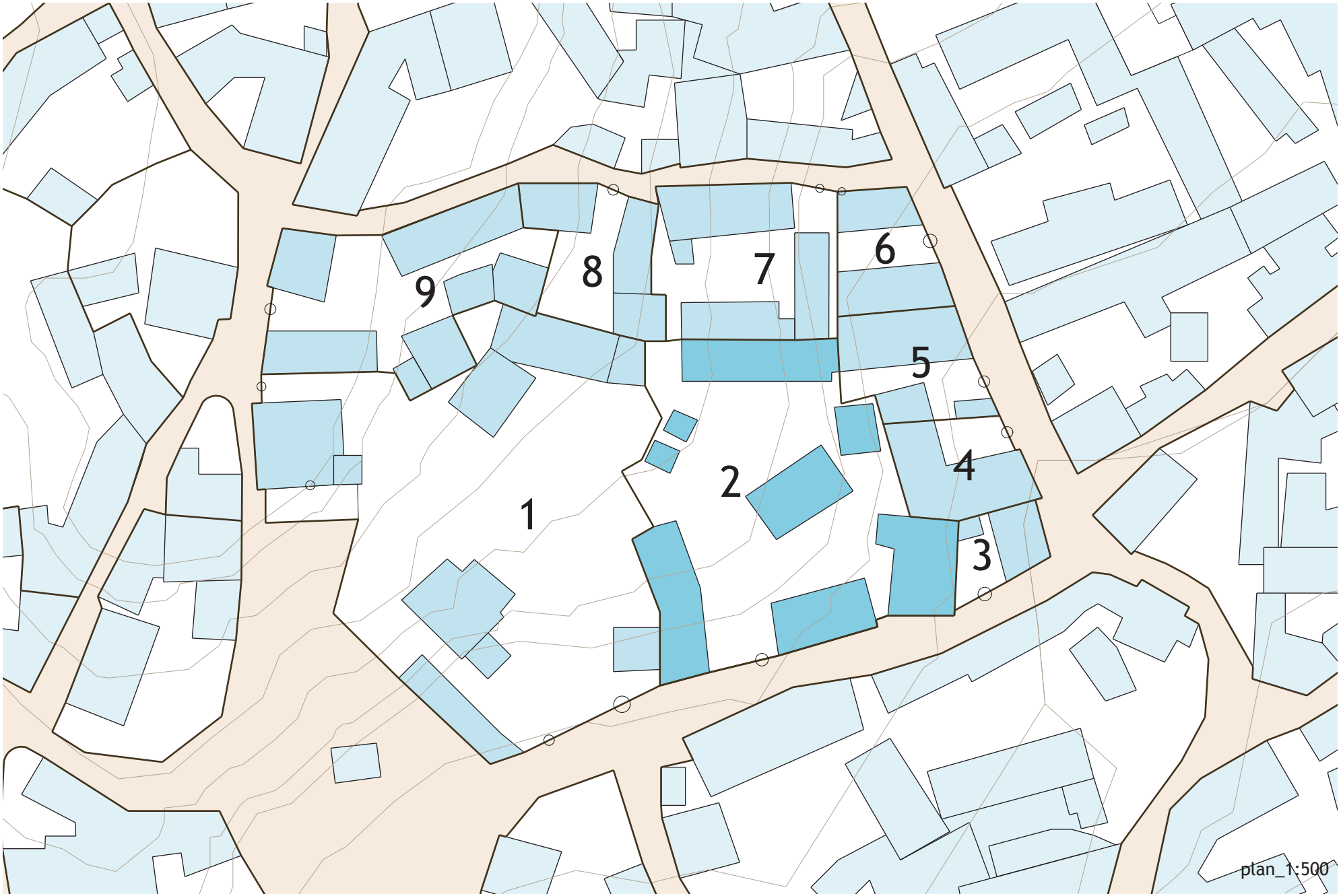
From the street you first enter a semi-public backyard before entering your own house. You have a higher degree of interaction with your neighbours than in the suggested low cost housing. It is not likely that everyone can afford their own house in addition to loosing the social network for taking care of the children.

low cost housing suggestion from Dol

Suggested site nort west of Aba Shawl



Plan, 1:500


9
8
7
6
5
4
3
2
1
plan_1:500

Area calculations

Block

_total area: 3 208 m2

Backyards

	Total area	Built area	%
_1:	1 206,0 sqm	319,7 sqm	26,5 %
_2:	776,4 sqm	326,9 sqm	42,1 %
_3:	63,4 sqm	35,4 sqm	55,8 %
_4:	116,8 sqm	89,4 sqm	76,5 %
_5:	137,9 sqm	90,5 sqm	65,6 %
_6:	113,2 sqm	77,5 sqm	68,4 %
_7:	267,9 sqm	103,5 sqm	38,6 %
_8:	161,0 sqm	89,1 sqm	55,3 %
_9:	365,2 sqm	218,0 sqm	59,7 %

Low cost housing

70,0 sqm 48,0 sqm 68,6 %

The low cost housing has the second largest percent of built up area compared with all the backyards in our selected block. Directly translated this means that it is possible to achieve the same building standard within the existing network of Aba Shawl, but less strict rules for housing typologies might be necessary. The suggested low cost housing also does not take into consideration the existing social networks of the shared backyard.

Backyard no.2

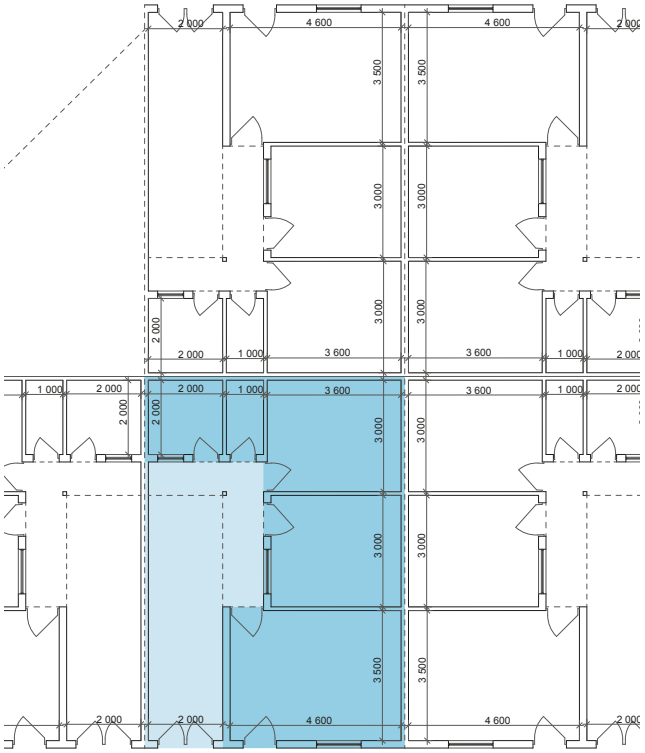
Families/houses: 12
Persons: 70
Total sqm: 776

70 persons/776 sqm = 0,09 p/sqm

Low cost housing

Families/houses: 1
Persons: 5 - 6
Total sqm: 70

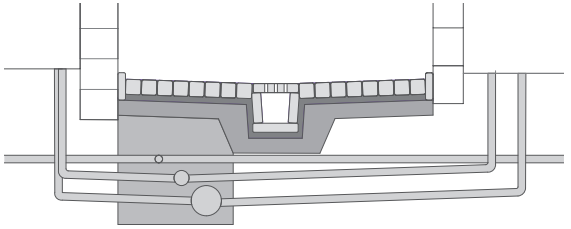
6 persons/70 sqm = 0,09 p/sqm



plan_1:200


backya
of study
TAMO

water_distribution system



Suggestion street section, 1:50

meeting with Sveinung Sægrov

During this process we have been in contact with Sveinung Sægrov at the Institute for
Water and Environment, NTNU, several times. We also had a new meeting in the beginning of April to be able to discuss our suggested solutions more into detail. This connection, in addition to the cooperation with Mette Udneland, civil engineering student, ensures that our technical solutions are realistic and feasible.

Comments after the meeting:
_The water distribution in Asmara is not reliable. This means that you need a security factor when dimensioning the water tower to ensure a stabile distribution in Aba Shawl.
_What is the reason for the unstable water distribution in Asmara? Is it a lack of water or because of an old pipe system?
_Surface water: It is not logical to dimension the plant to handle the surface water when the heavy rains only occur a few weeks a year. The surface water will also be more polluted than the grey water because a lot of dust and goats in the streets.
_Street section: some places the cobblestones can be moulded together in case there is a risk of the surface water washing away the sand between them.
_It is possible for everyone to get inlaid water because of the pressure from the water tower, but some places there is not good enough slope conditions for the grey water not to sediment. A solution for this could be to create a overpressure. A local cistern will create a siphon solution. The other alternative is small electrical pumps.

water_distribution system

plan_1:2000

The blue dotted line is where it doesn't slope enough. This might look much, but most places it can be solved by regulating the height of the pipes in the street section. Most problem areas lie around 30 - 40 cm too high, while the worst case is 2 meters. There it is necessary with a pump.

water_distribution system

plan_1:2000

The length of the following sections are scaled down to emphasize the differences. Brown dotted line is where it doesn't slope enough.

The blue dots show streets narrower than 1,50 meters. A piaggio will not be able to drive through these locations and a fence or wall might have to be moved or demolished.

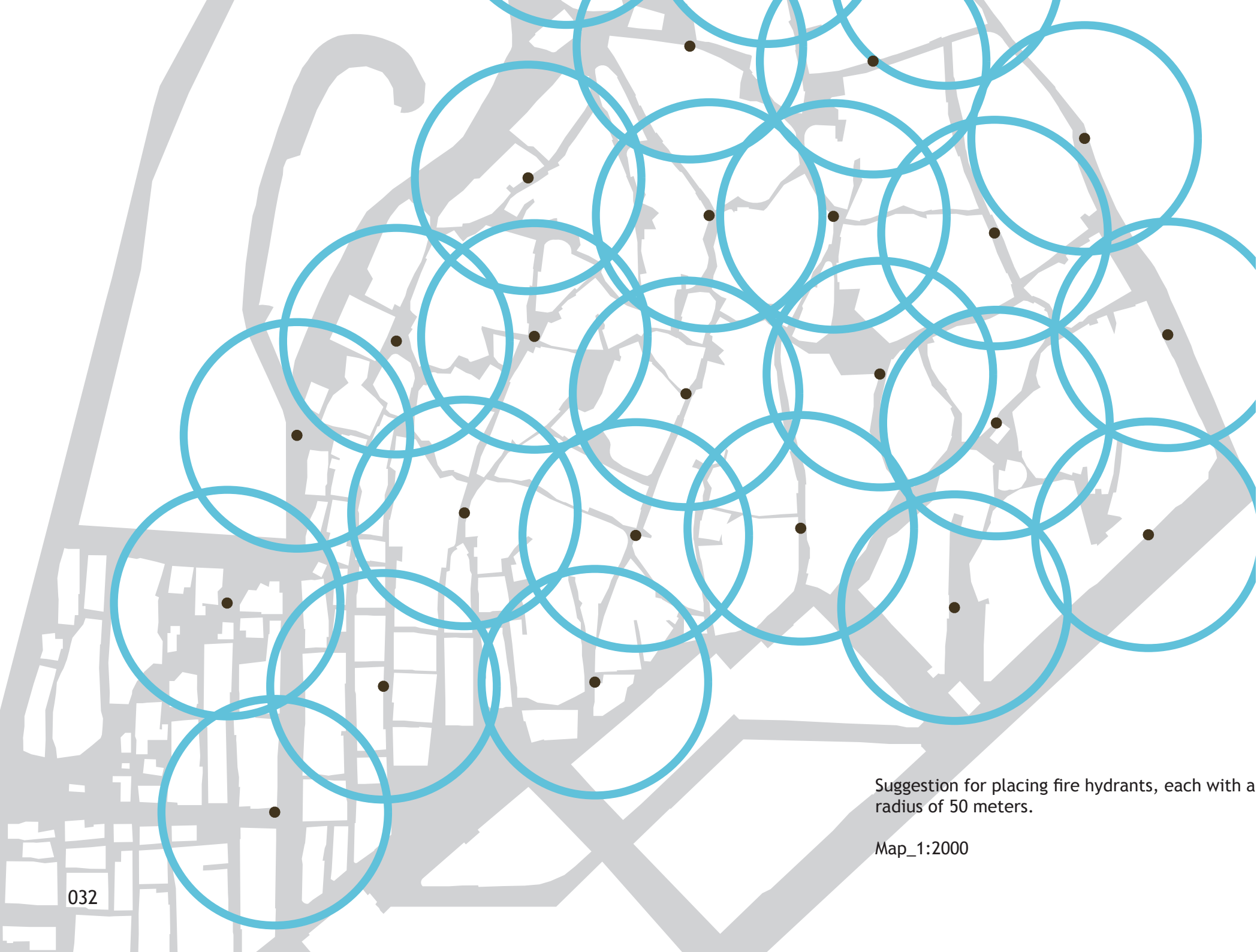
Map_1:2000

accessibility

It is absolutely essential with some kind of upgrade of the street network to improve the everyday life of the inhabitants in Aba Shawl. This will solve problems concerning transporting things in and out of the area, such as waste and goods. Improving accessibility also leads to the development of new services, which again will give economical growth.

The two main issues concerning the accessibility are the cover and the width of the streets.
The cover of the streets can be upgraded at the same time as pipes for the water distribution system is added in the streets.

When it comes to the width of the streets, a piaggio can solve the problem. A piaggio is maximum 1,50 m wide and will be able to transport goods and waste in and out of Aba Shawl.



Suggestion for placing fire hydrants, each with a radius of 50 meters.

Map_1:2000

Suggestion for adding a new bus stop by the hill-top. The buss will take an extra loop from its original rout.
Map_1:2000

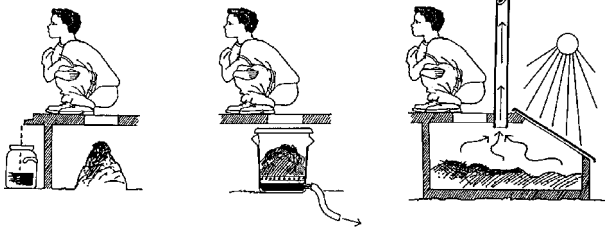
toilet solutions_backyards

To illustrate what an upgrade of a backyard means, we have looked at what should be proposed as minimum requirements, and how a design could be shaped around them. In order to be more specific, we have chosen one backyard along our street as an impact area. The main issue is the implementation of a new building, the toilet, but finding solutions for rainwater harvesting and waste also affects the backyards.

Many systems are based on dehydration and urine diversion. This can prevent smell and insects, but also makes it possible to collect the urine as fertilizer. In Asmara, the climate is quite dry, and it is therefore possible that the urine might not be a problem, but will evaporate. This we will have to look further into.

If one adds organic waste from the kitchen, you have a solution with decomposition. This could be a good solution in Abashawl since the soil there isn't good for growing vegetables and such. Giving people the possibility to grow their own vegetables could be a extra benefit from using an ecological sanitation system and not flushing toilets.

Bouble vault system:
_two processing chambers seem to be the best solution so that the waste will have been processed for a while before it is collected. With one vault, you can also risk that it gets full before someone can come and empty it.

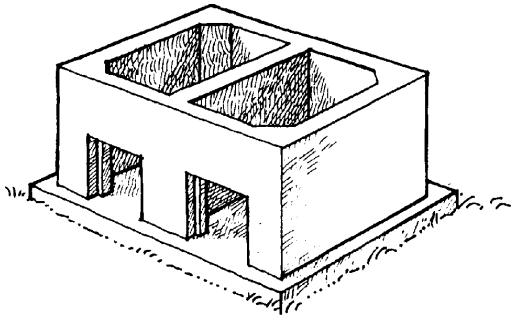


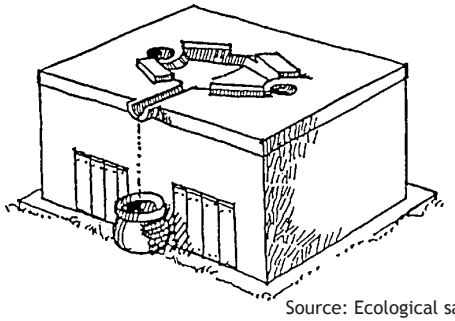
Source: Ecological sanitation, SIBA, dealing with liquids, p.51

Vietnamese double-vault toilet

Sizes:
_two processing chambers each with a volume of about 0.3 cubic metres.
_each vault is 0.8x0.8x0.5 metre. You also need two openings 0f 0.3x0.3 metre for removal of the dehydrated material.

Source: Ecological sanitation, SIBA, p.21

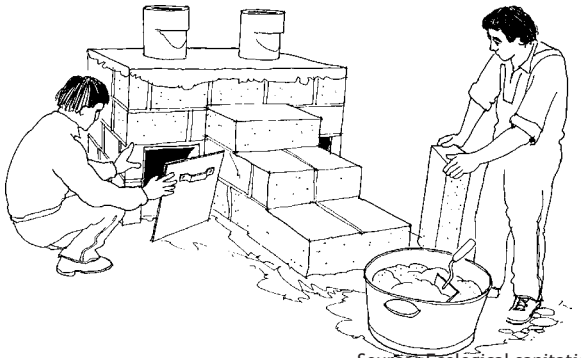


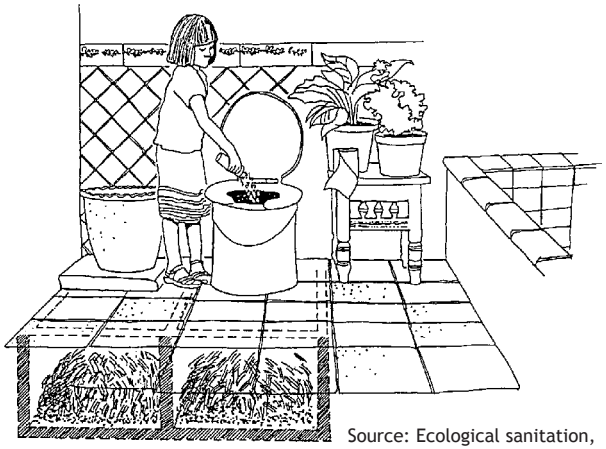

Source: Ecological sanitation, SIBA, Vietnamese double vault, p.21

The Lasf (Letrina Abonera Seca Familiar)

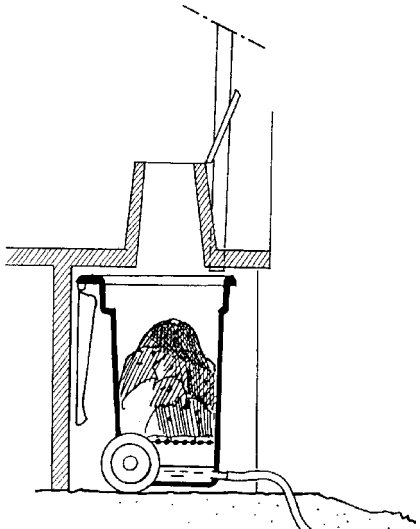
_dehydrating toilet in Central America and Mexico
_each vault has a volume of about 0.6 cubic metres. From the collector the urine flows via a pipe into a soak pit under the toilet chambers. The user sprinkles some dry materials like ashes, soil or a soil/lime or sawdust/lime mixture over the faeces. The paper is placed in a special container next to the seat or burnt. Every week the content is stirred with a stick and more ashes added.
_a household of 5-6 persons will produce almost half a cubic metre of dehydrated completely odourless material per year (p.23).
_in San Salvador the system has been successfully used in a poor, high density squatter area and in Cuernavaca by a number of middle class families living in modern, high standard houses.

Source: Ecological sanitation, SIBA, p.22-25


Source: Ecological sanitation, SIBA, Lash toilet, p.23



Source: Ecological sanitation, SIBA, Lash toilet, p.25



Source: Ecological sanitation, SIBA, Movable bin, Kiribati, p.39

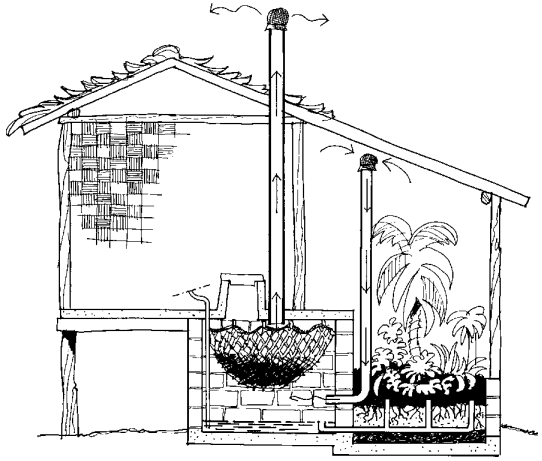
Composting toilet
_a biological process where organisms break down organic substance to make humus.
_adding other types of organical waste, for example from the kitchen, could be a good idea in Aba Shawl because this would mean that they are able to reuse even more of their resources. The soil conditions in Aba Shawl are very scarce, and getting rich humus for growing vegetables is a valuable resource.

Movable bin toilet in Kiribati

_a design with two 240 litre standard wheeled plastic refuse bins as composting chambers. It has a false floor of mesh which allows liquid to drain through to the base and out to a sealed evapo-transpiration bed. The bin needs some sort of ventilation.
_the design has proven quite successful even in a humid climate.

Source: Ecological sanitation, SIBA, p.39

This type of system could be a good idea in Asmara because the bin would be easy to exchange for workers from the service station without having to handle the waste.



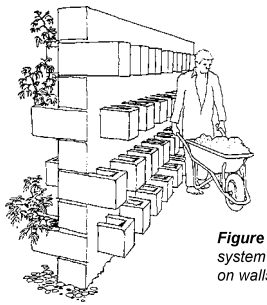


Figure 2.7 *In Botswana Dr Gus Nilsson has developed a system of intensive horticulture for dry tropical areas, based on walls with built-in containers (see also Figure 5.3).*

How many people is this meant for? We have backyards with up to 70 people. How many toilets will you need then?

_toilet waste

Toilet waste consists of two parts; urine and faeces. The urine contains as much as 90% of the fertilizer value in human excreta, and is also the easiest to use as fertilizer by the inhabitants themselves. The excess urine, and the urine from the inhabitants not wanting to use it in their backyard, is collected weekly. This urine is stored in tanks at the hilltop. It is then distributed to the allotment gardens, used in the parks of Aba Shawl or sold to farmers.

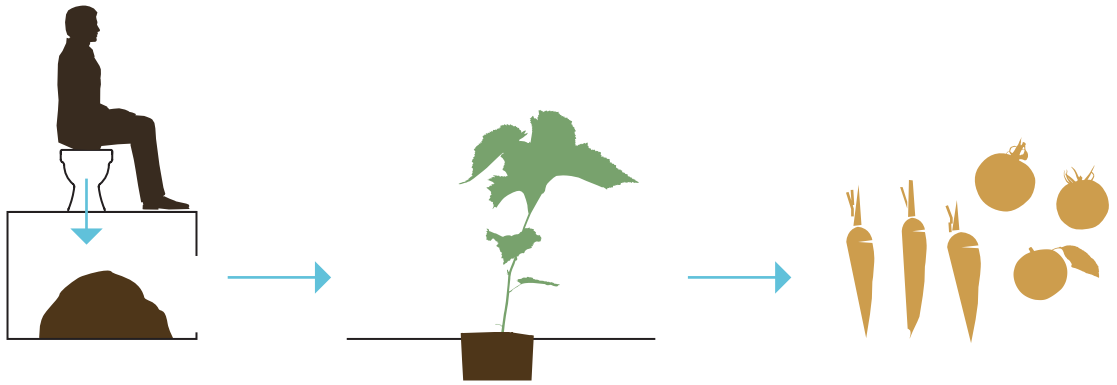
The sanitized faeces is collected by workers at the operation station and and then brought to storage spaces at the hill top. Feaces that is not fully sanitized will go through a secondary treatment here. When it is fully sanitized it is used in the allotment gardens. Surpluss of soil is used in the parks of Aba Shawl, or sold to farmers as the urine.

The toilet waste gets collected from the households by a custom made Piaggio or similar.

The inhabitants themselves agree on a time schedule for when it is most practical to empty the toilets.

The ecological sanitation system we suggest means that work places are created. This can give jobs to the inhabitants of Aba Shawl and in that way also an increased income level.

Given the possibility to grow their own food also means benefits for the residents, both when it comes to health issues and economy.



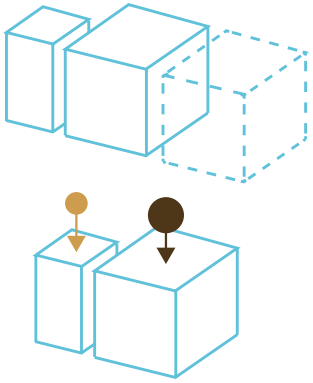
dimensions

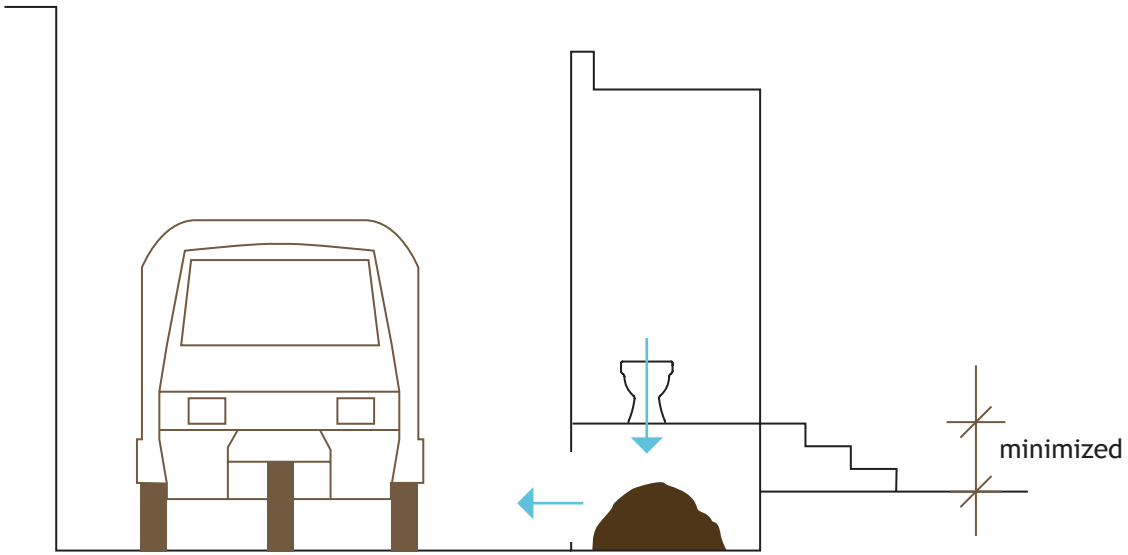
The double vault Lasf-toilet from Central America and Mexico seems to be the best system for our location. It can be expanded to a composting toilet, but this might require a better follow up of the process to avoid smell and flies and therefore organic waste might be best solved in a separate system. This would also prevent the vaults from filling up to quickly.

After using the toilet a dry material is sprinkled over. When the first vault is full, you seal it and start using the other. When this is also full, you need to switch back. The time this take, depends on how many users it has. A household of 5-6 persons will change toilet once a year. The vaults are dimensioned to be emptied every 6 months where this is possible. The faeces in a full vault can then be fully sanitized before collected by the workers or used in the allotment gardens or in the backyards. We propose sizes between 0,9 cubic metre and 0,6 cubic metre depending on how many people are sharing the toilet. In the beginning it might be many people sharing one toilet and it will have to be emptied more often. Then the faeces will not be fully sanitized before the second vault fills up and it will have to be stored in a new tank before it can be used further. This is also the case for backyards where there is not enough room for a double vault system. Here we propose a single vault of 0,5 cubic metre that has to emptied every 4 months, also depending on how many people are using it.

The urine is separated into a separate tank and collected every week.

toilet solutions_backyards





urine division

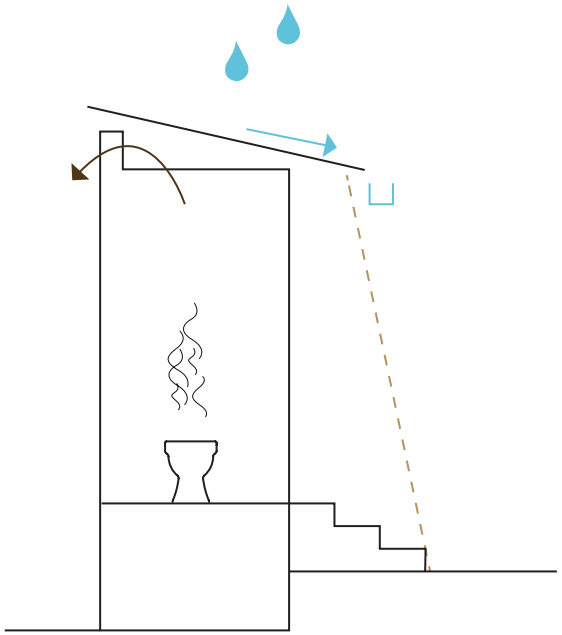
The urine is led into a separate tank and can be collected every week if not used on site. The urine contains as much as 90% of the fertilizer value in human excreta and it is important to separate it from the faeces to prevent it from getting contaminated. It is easy to use as a fertilizer by the inhabitants themselves in their own backyards.

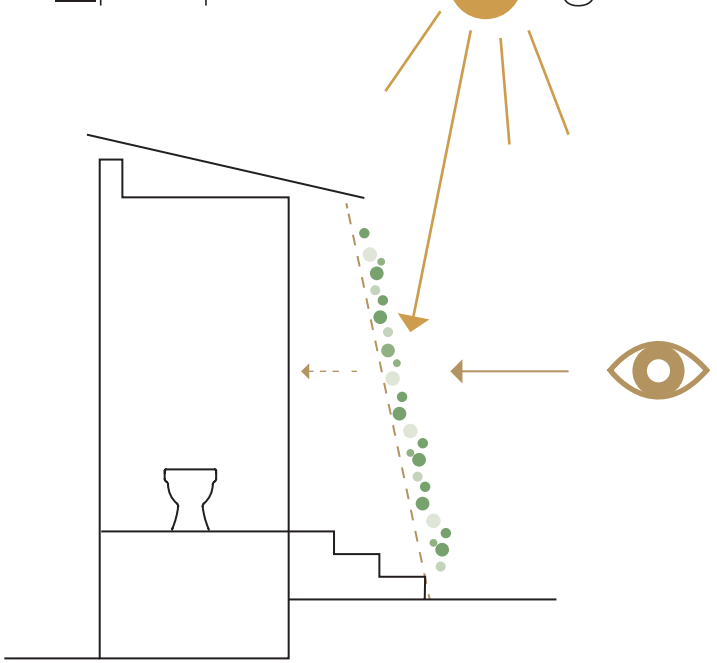
A special seat is used for separating the faeces and the urine. Many people doubt that the system can actually work, but tests show that they work equally well for both males and females as long as they sit or squat (Ecosan, p.45).
A small chamber is placed in the front of the toilet seat with a tube leading down to a separate tank than can easily be exchanged.

section

The street section is important in the design of the toilets. The waste should be easily accessible from the street so that it can be collected without the workers having to enter the backyards. In most situations, there is also quite a big height difference (from 0,2 m up to 1 m) between the road outside and the ground level of the backyards. This can be exploited to minimize the height difference between the floor of the toilet and the ground level in the backyards. If it is not a possibility to build a toilet along the street walls, it is still possible to build it inside the backyard elsewhere. This does however mean that you instead of a vault have a transportable tank that can be rolled out for collection.

toilet_proposed design





materials

In our suggestion we have used HCB - Hollow Concrete Blocks. However, that the inhabitants use materials they have access to and know how to use is the most important. This also prevents all the facades and fences in Aba Shawl ending up looking the same.

the roof

The roof has a tilt towards the backyard so that the water in the rainy season can be collected in the backyard instead of flooding the streets.

There is also an opening between the walls and the roof so that the toilet is easily ventilated.

Materials:
_steel plates
_wooden beames

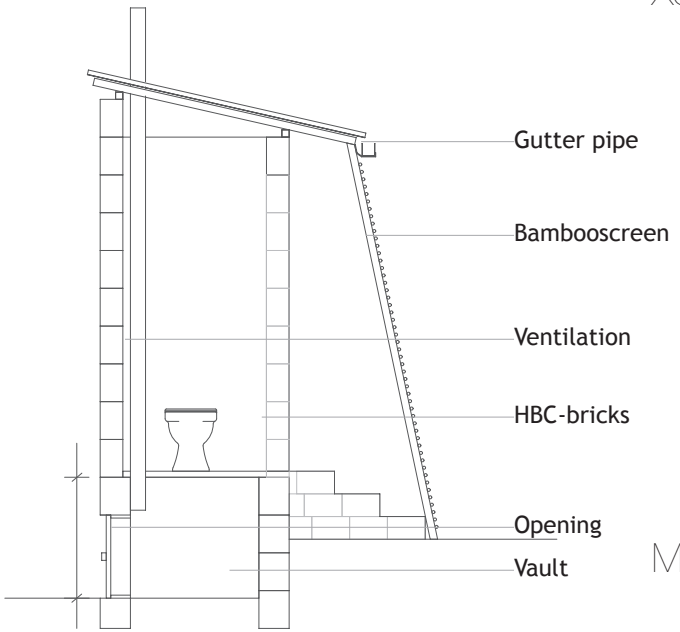
screen

A light wall is put up infront of the entrance of the toilet. This provides shading, but also privacy by shielding the entrance.

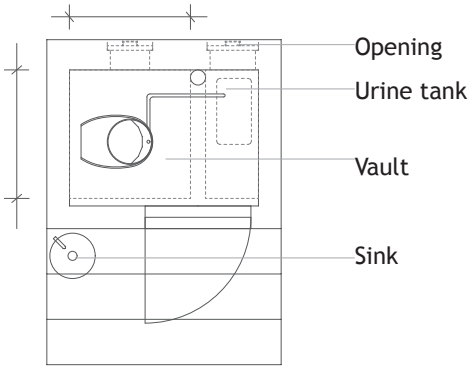
The screen is made of bamboo and can be used for climbing plants and be a green wall inside the backyard.

Materials:
_bamboo

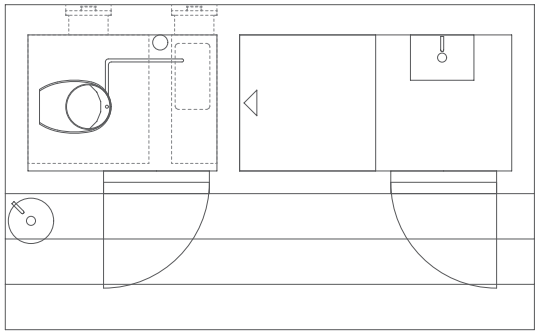
XS_ single vault_0,5 cubic metre



850 x 800 x 800

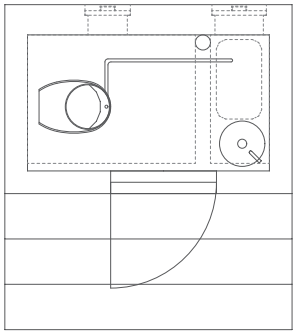


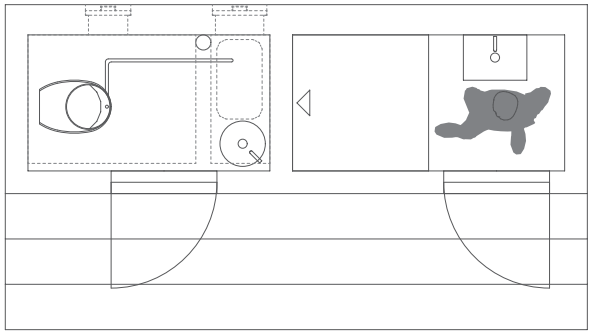
850 x 800 x 800



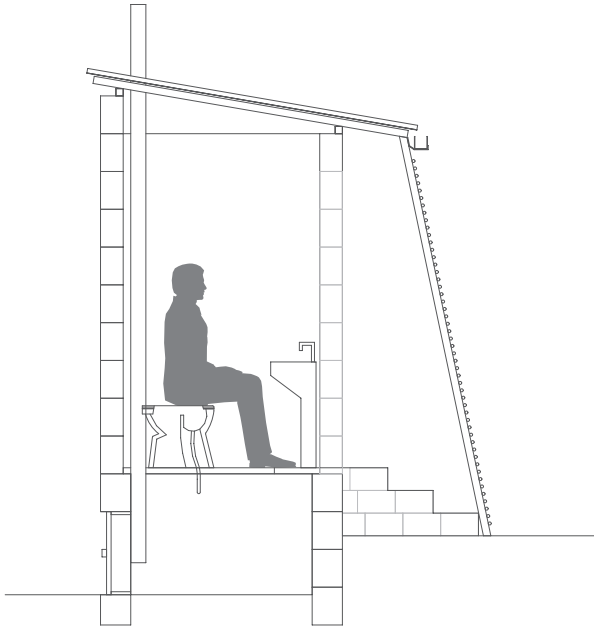
M_ single vault_0,75 cubic metre

850 x 1110 x 800



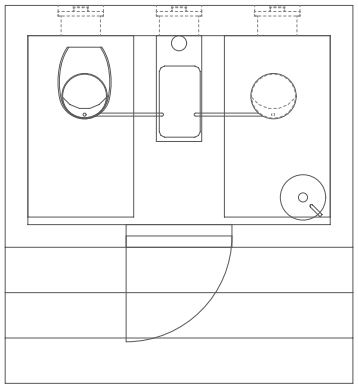


toilet_proposed design_1:50

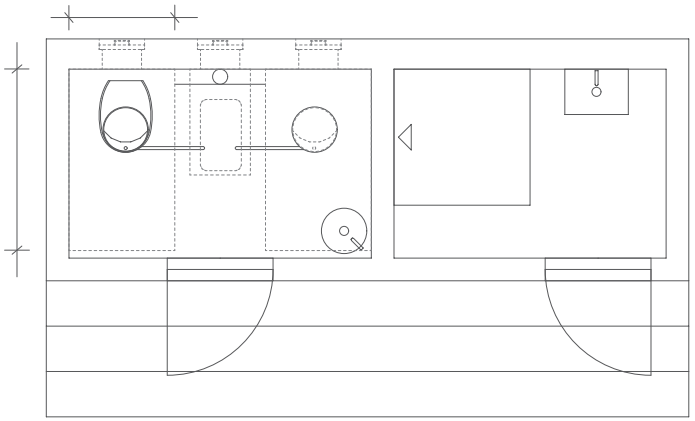


M_ double vault_0,7 cubic metre

1200 x 700 x 800

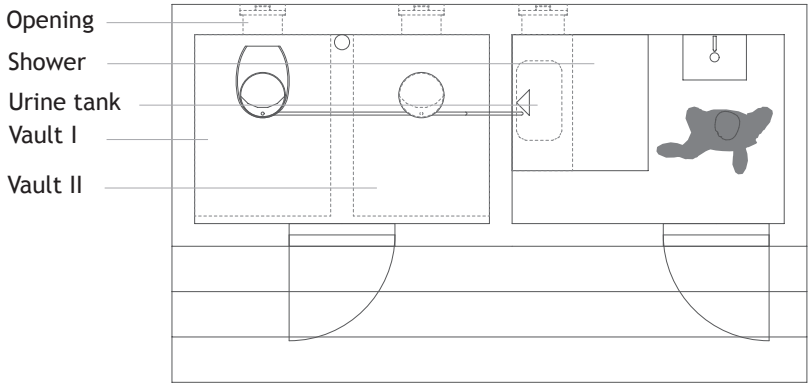


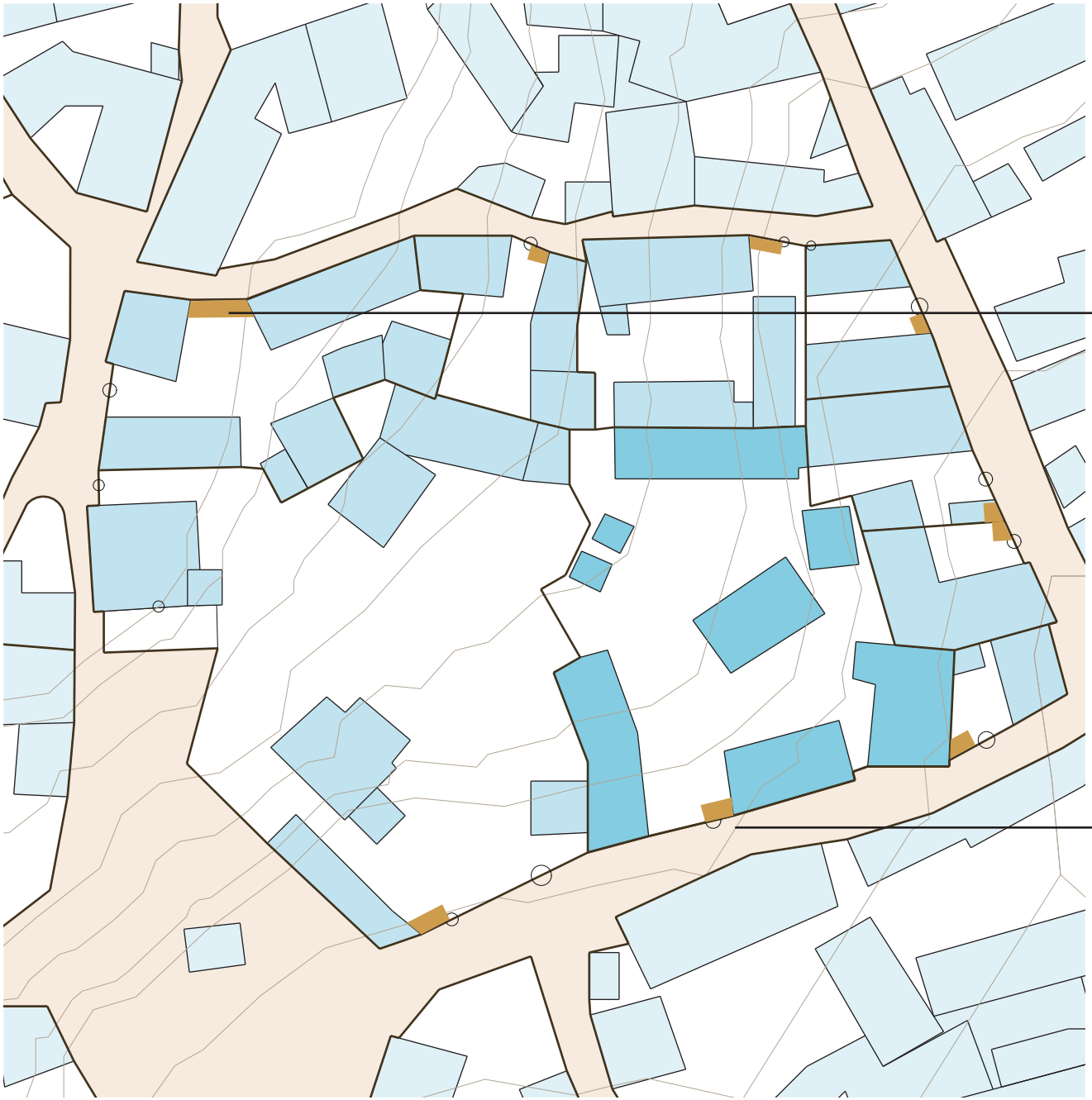
1200 x 700 x 800



L_ double vault_0,9 cubic metre

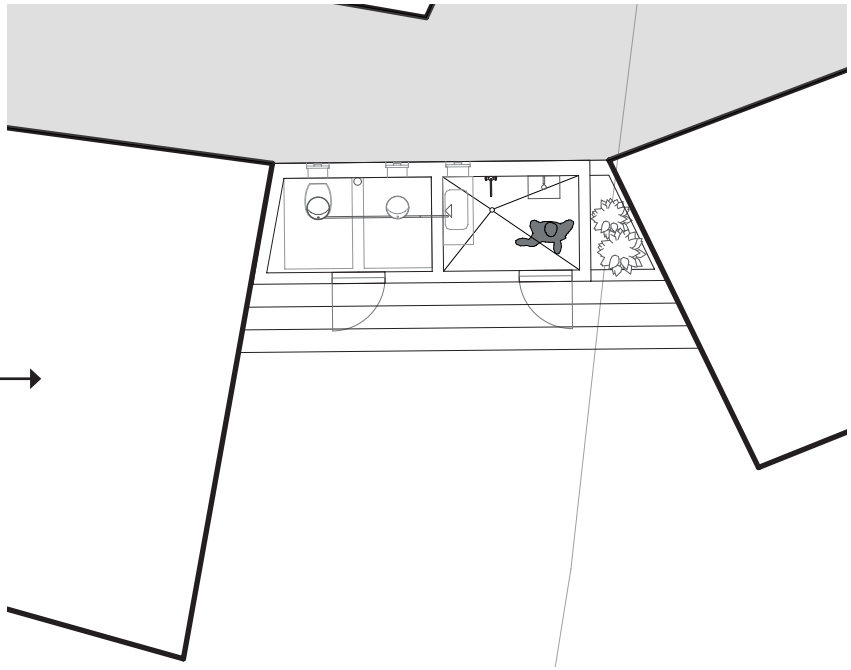
1200 x 900 x 800



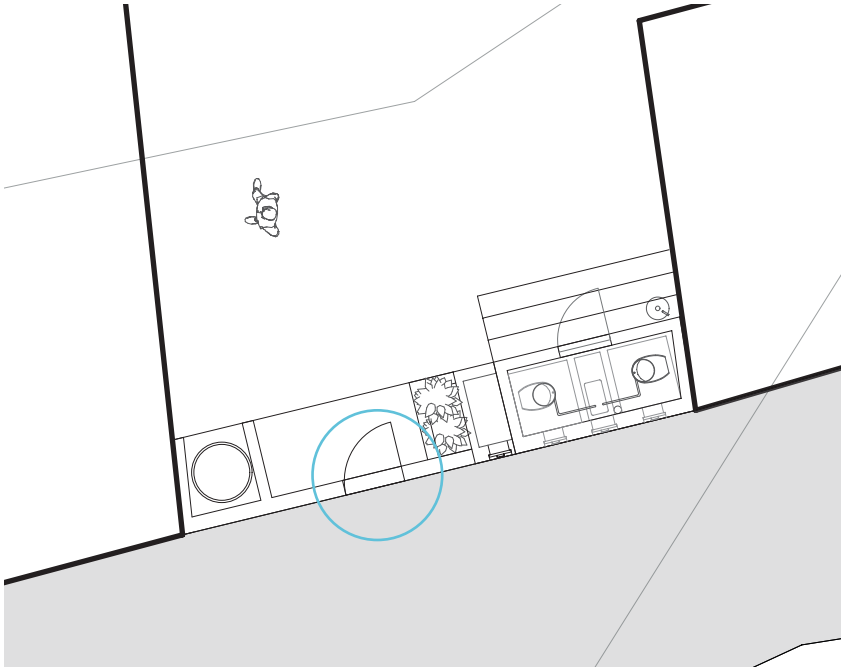


toilets

The brown marks show a distribution of toilets in the block we have choosen as a case study.



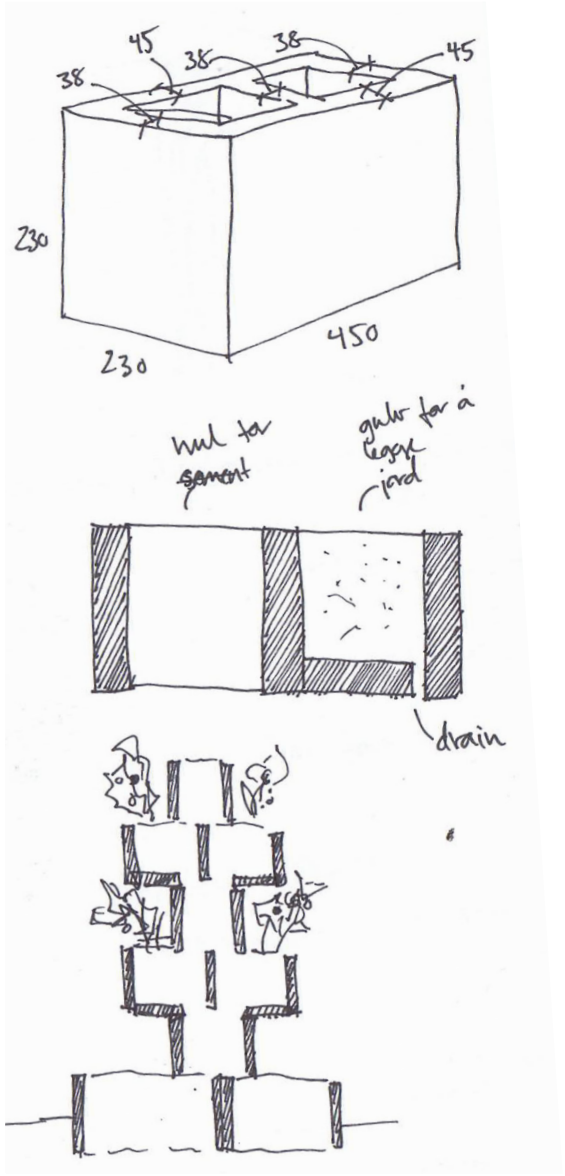
Toilet and shower placed in a backyard.



Toilet and shower placed the backyard we have choosen as a case study.

_comments
Work on the transition between the street and the backyard.

Wall
What can we use the wall for?
_toilet
_to grow
_bench/seating
_meeting places
_solid waste management
_shade
_public function
_tap station
_lighting
_collect water



vertical garden

By using hollow concrete blocks, HCB, it is possible to build walls with built-in growing boxes. When building the wall, some of the blocks are turned 90 degrees and the part turning out can be used as a growing box if one adds a floor and a small hole for drainage. When you have little space, using the vertical surface can be valuable. In addition, these green walls will give be an aesthetical feature in the backyards.

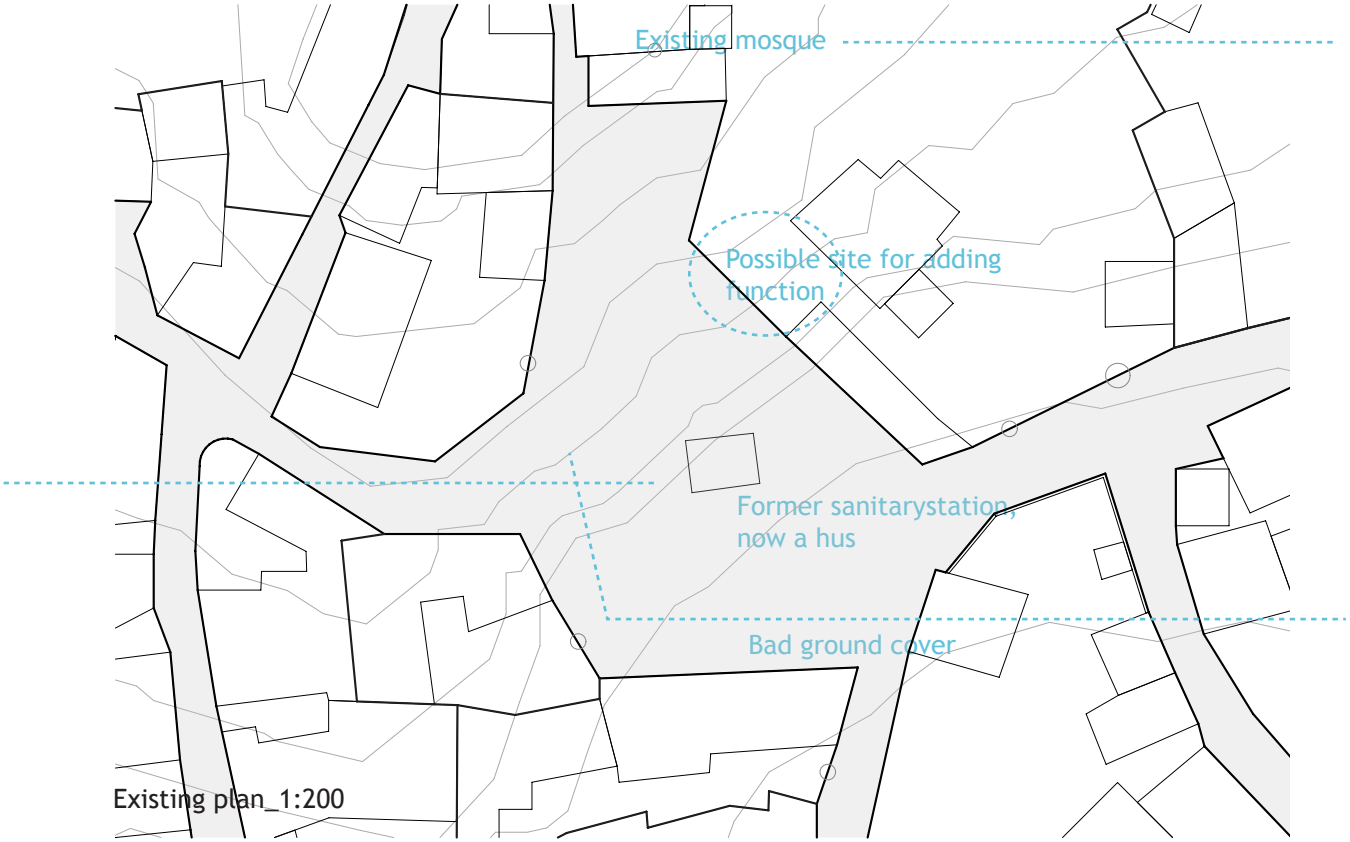
(source: vertical gardens in Gaberone, Botswna)

Map showing open spaces within the streetnetwotk of Aba Shawl

public space

The open spaces within the city tissue of Aba Shawl have no type of urban character, but have a great potential in becoming informal meeting places for the inhabitants, giving them the possibility of socialising outside their private home.

We have choosen to look at one of these sites and develope a design.

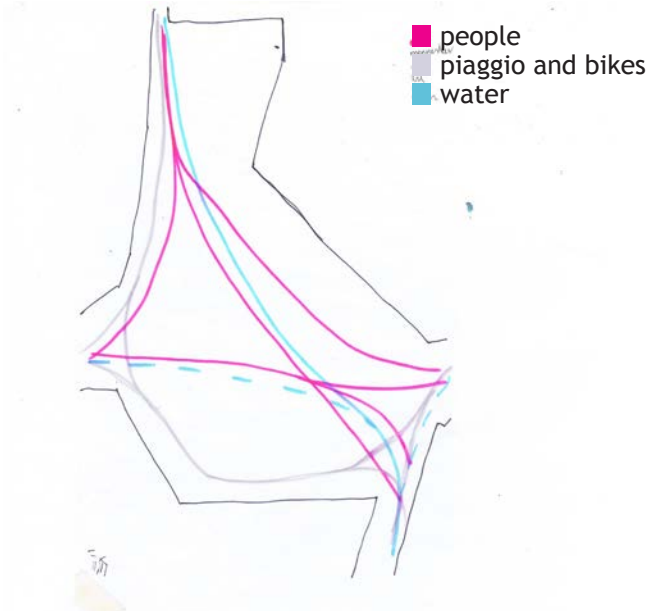


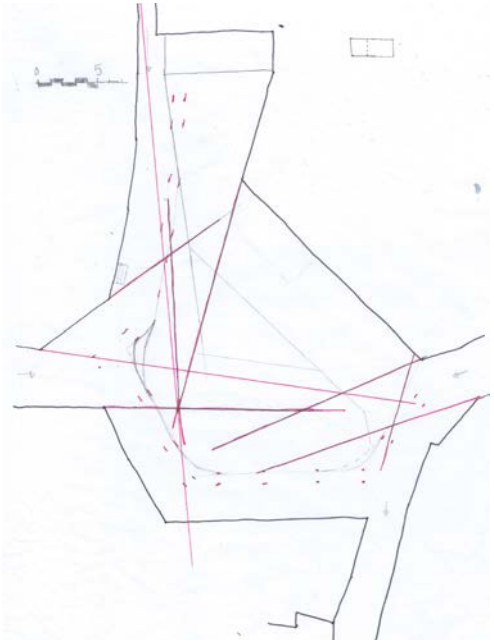
Existing plan_1:200

Today, the site has no type of special function. A mosque lies at the top of the site, but does not have an active facade towards the open space.

A former sanitary station has been transformed into someone's house. This almost gives you the feeling of invading someone's private property when crossing the site. We propose to remove this house and relocate the inhabitants in an available plot north west of Aba Shawl. By doing this, Aba Shawl gains a bigger square inside the street tissue.

The ground cover at the site is rocky and uneven, making it difficult to use a bike or even walk at parts of the site.



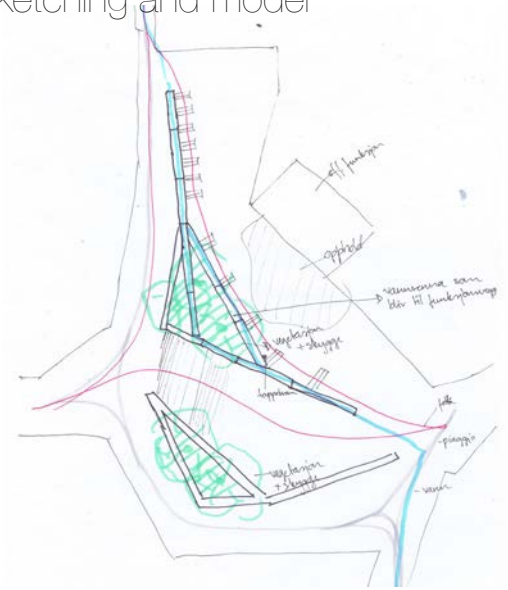


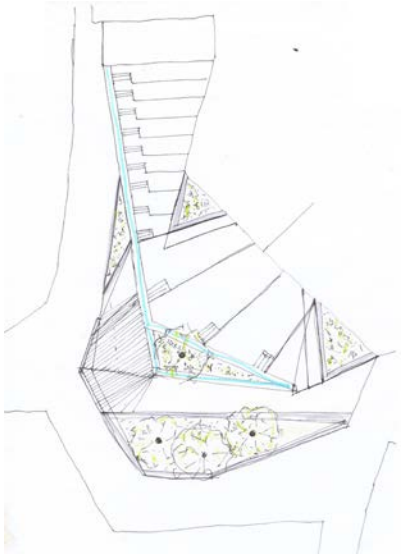
Principles we have followed in the design:
_upgrading cover for better accessibility
_add function to ensure activity
_create meeting places, place to linger
_handling surface water

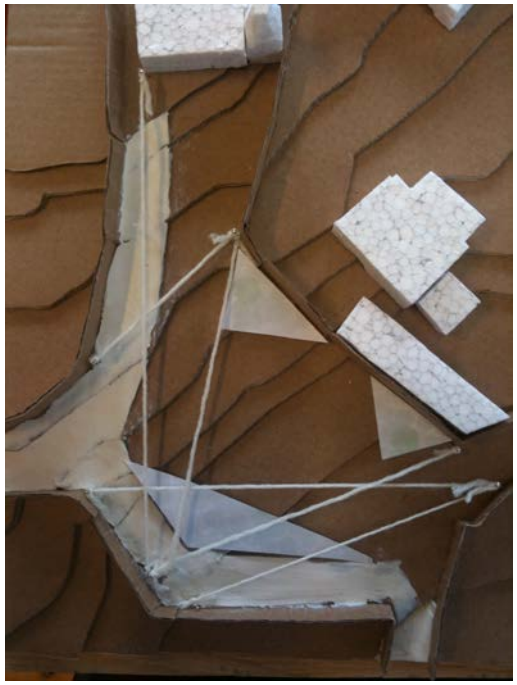
Piaggioes, people and surface water needs to get through the open space.

Lines from streets entering the site.

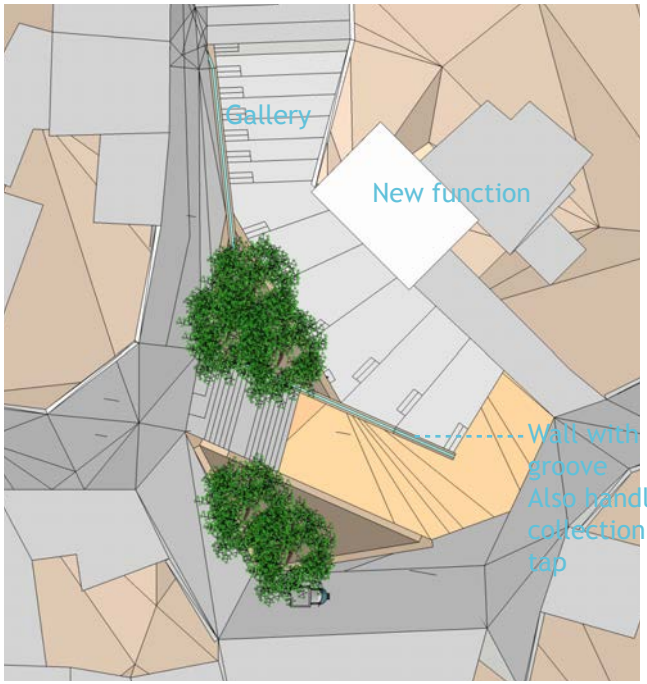
sketching and model



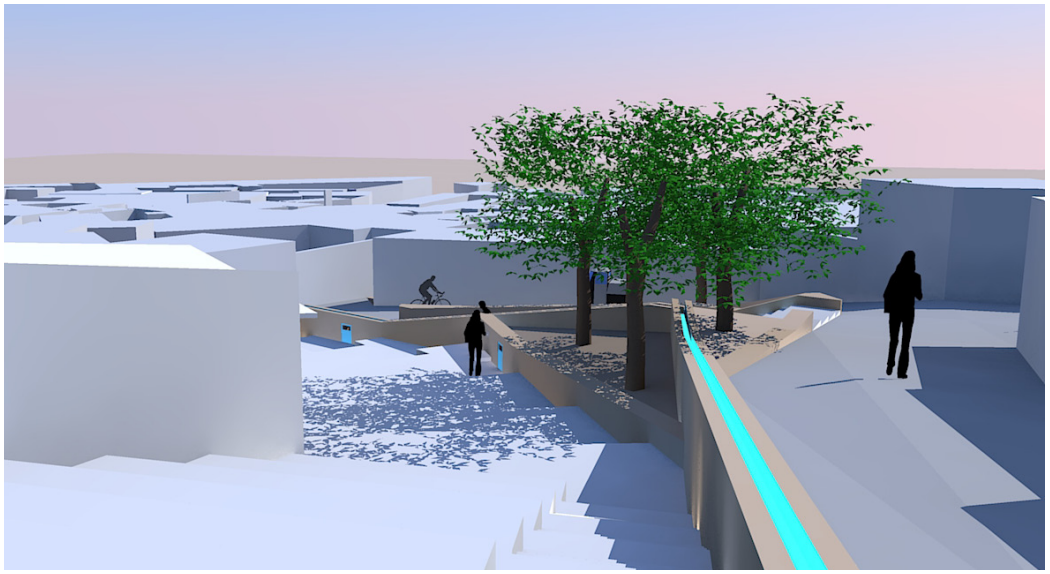




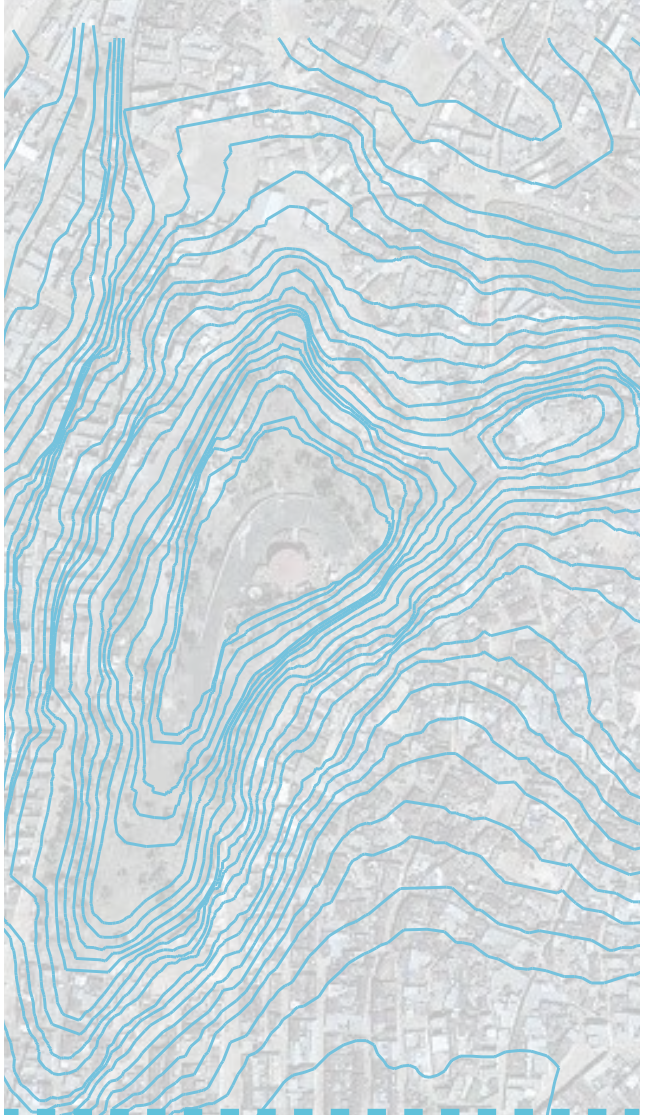
over designing

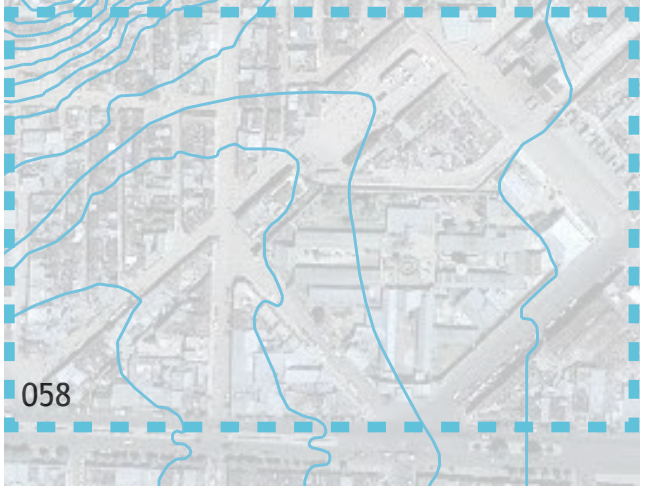


Our first design for the public space involves a high degree of interventions. It is not a suitable solution when taking into account the situation we are working in. It is over designing and we need to strip it down in the final design!



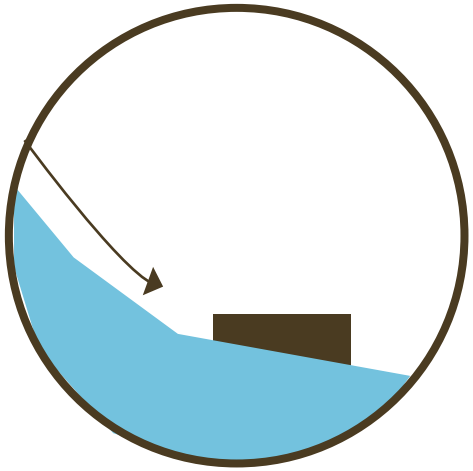
wedgan square





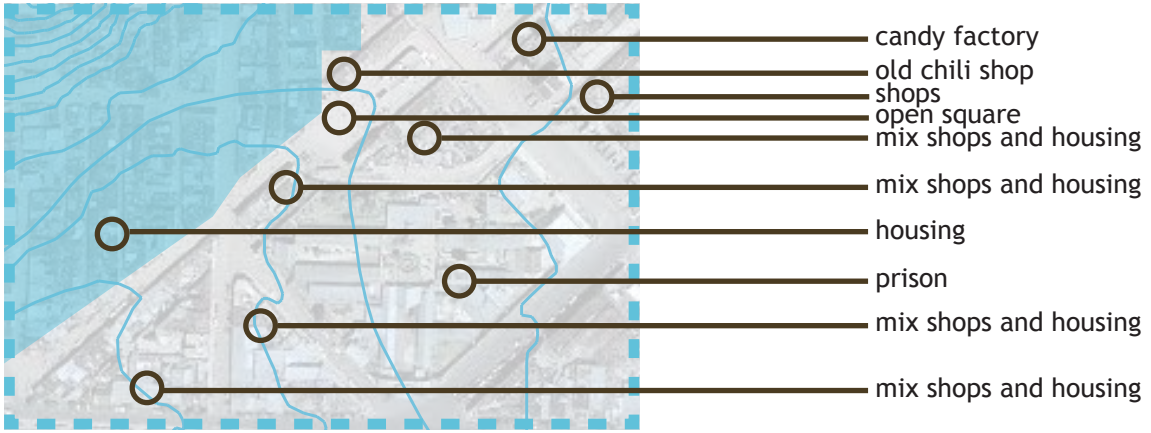
slope

The water treatment plant should be placed at the lowest point, but at the same time be close to Aba Shawl.



existing function

The water treatment plant should not weaken the existing business life. It should also not destroy existing structures that are used for housing.



wastewater treatment plant_possible sites

prison

Parts of the prison are old italian buildings, and there are no plans of moving the prison out of the city centre. This means that using this site either way is difficult.

chili shop

One part of this building is used as a chili shop where one person works, while the rest stands empty. It lies in connection to the open square, which makes it a very suitable site.

open square

The open square is a meeting point with a lot of people passing through. It is also one of the few open places in Aba Shawl, so filling it completely isn't prefered. It can take some building though.

candy factory

The factory is still running, and employs many people. We wish to create workplaces, not take them away, so using this site is out of the question.

housing

Demolishing parts of the housing area to build the plant goes against our principle to let the inhabitants stay, but if neccessary it is possible.

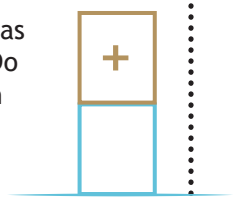
shops

We do not wish to weaken the areas business life, so keeping the stores is a main goal. We rather aim to strenghten this. Most of the surrounding shops are also in good condition.

First model studies

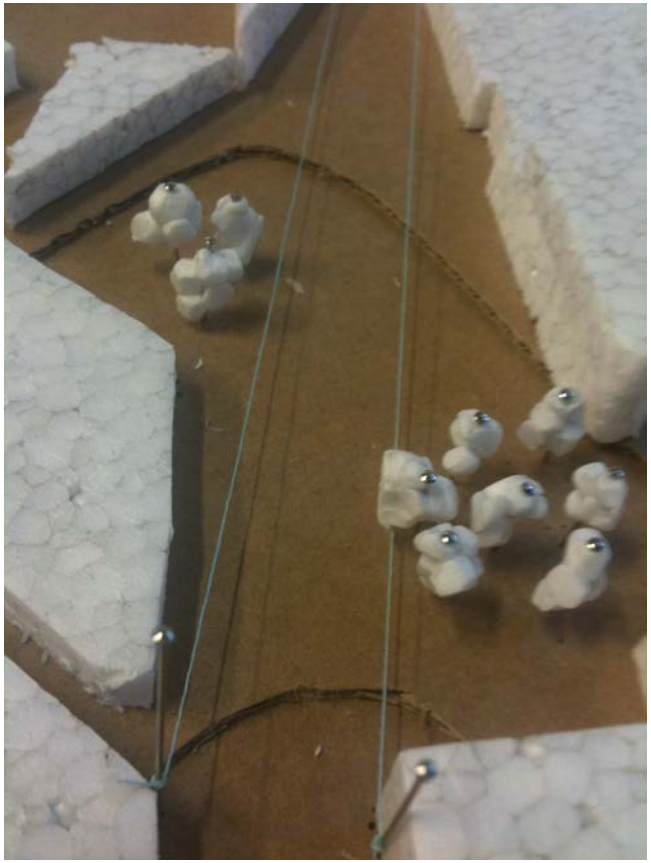
There are different types of markets all over the city, from the small, illegal blankets to the organized bigger ones under roofs. Should we accommadate for this different types, or trust that it will happen by itself like it has in the rest of the city?

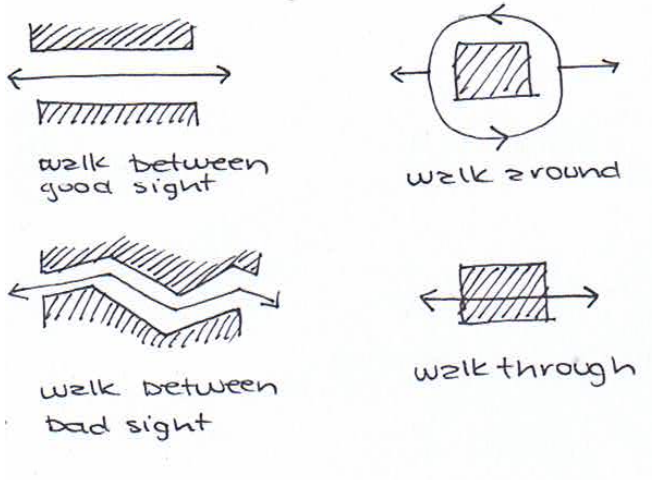
How high can we build? The Square has two buildings of about eight meter. Do we have to go higher than this or can we compete with them using other features?



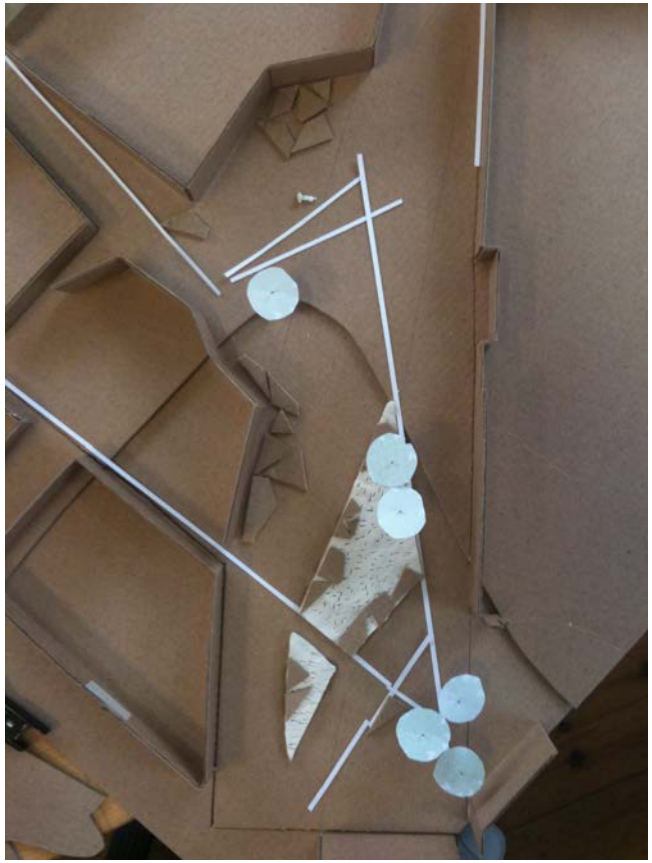





walk between
good sight
walk around
walk between
bad sight
walk through





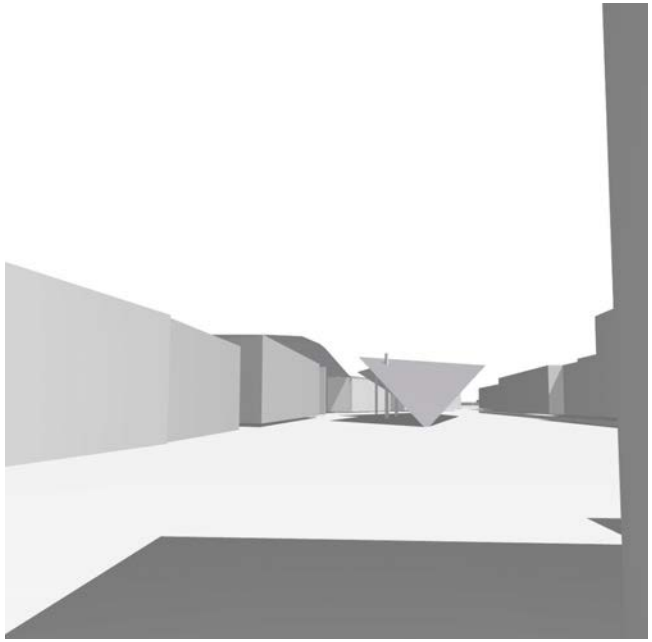

3D modeling

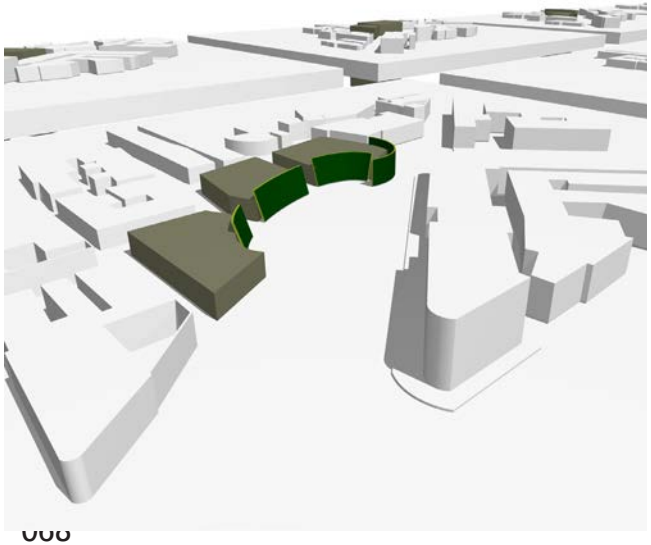
How can we define the space around our buildings? Does it belong to the rest of the Square or do we want to separate the two? Are we entitled to occupy the whole Square? Will the business life around get strenghtened by our proposal?

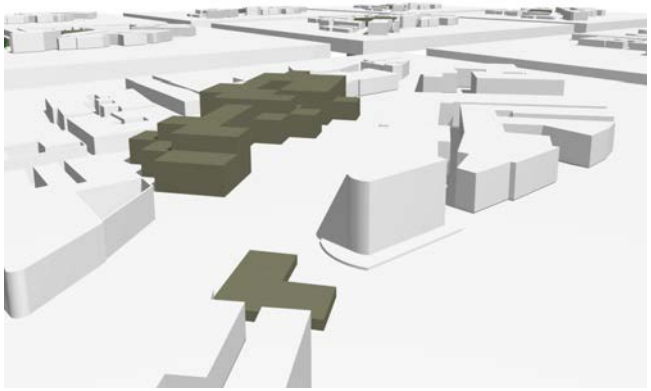
How can we accommodate for the natural flow through the Square, and at the same time draw attention to the space in front of the buildings?

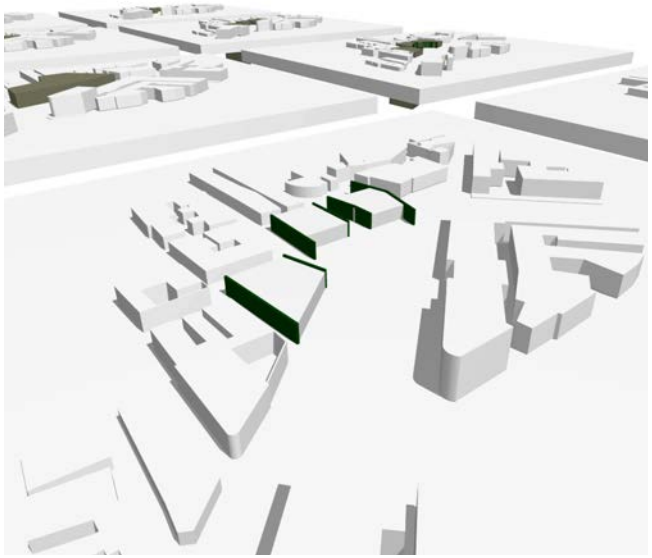
How can we provide shade? Trees or roofs?

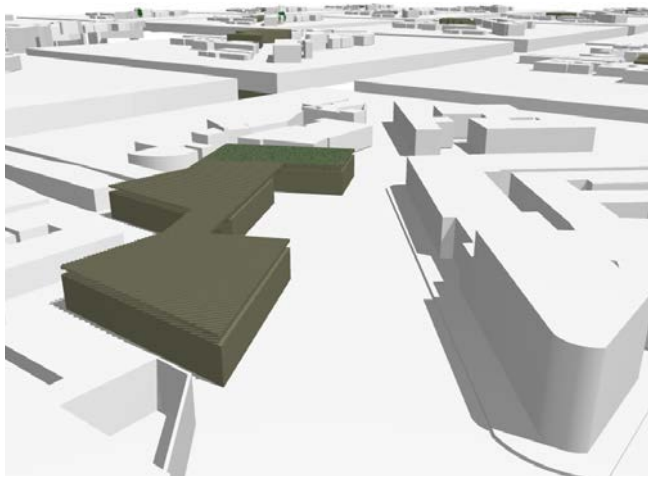
How do we create an attractive public space that makes people want to linger?

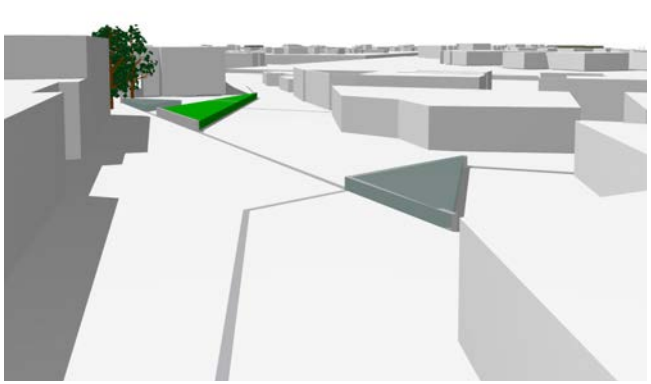


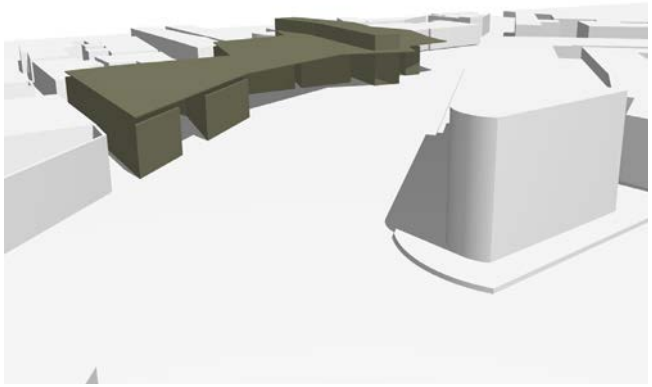


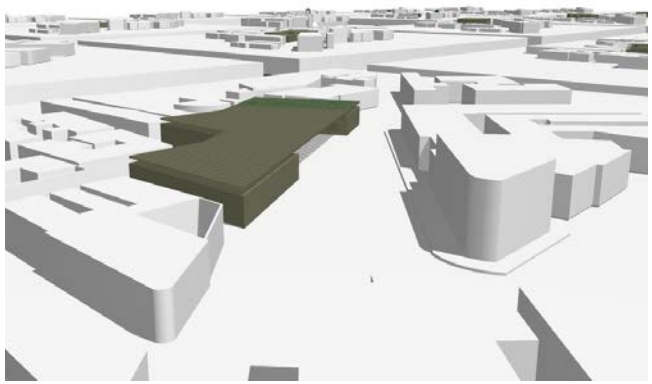










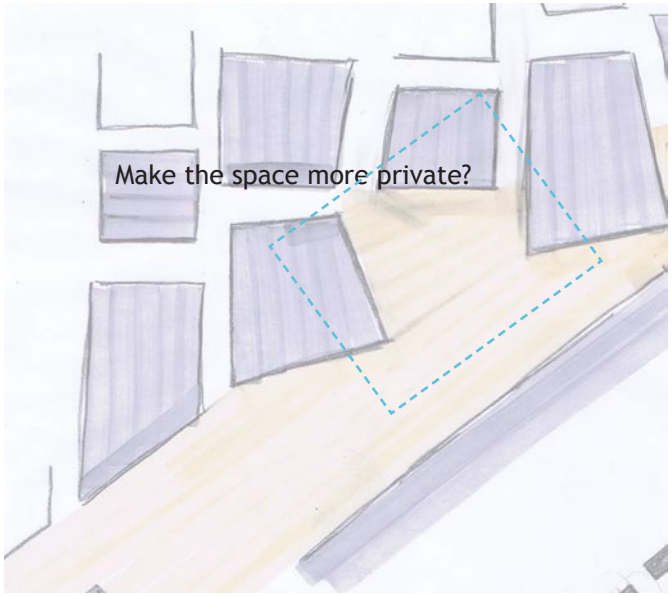


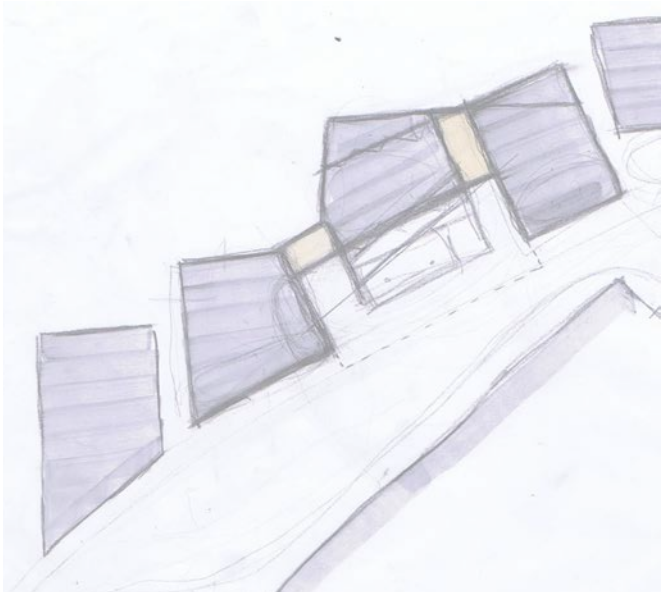
Material workshop

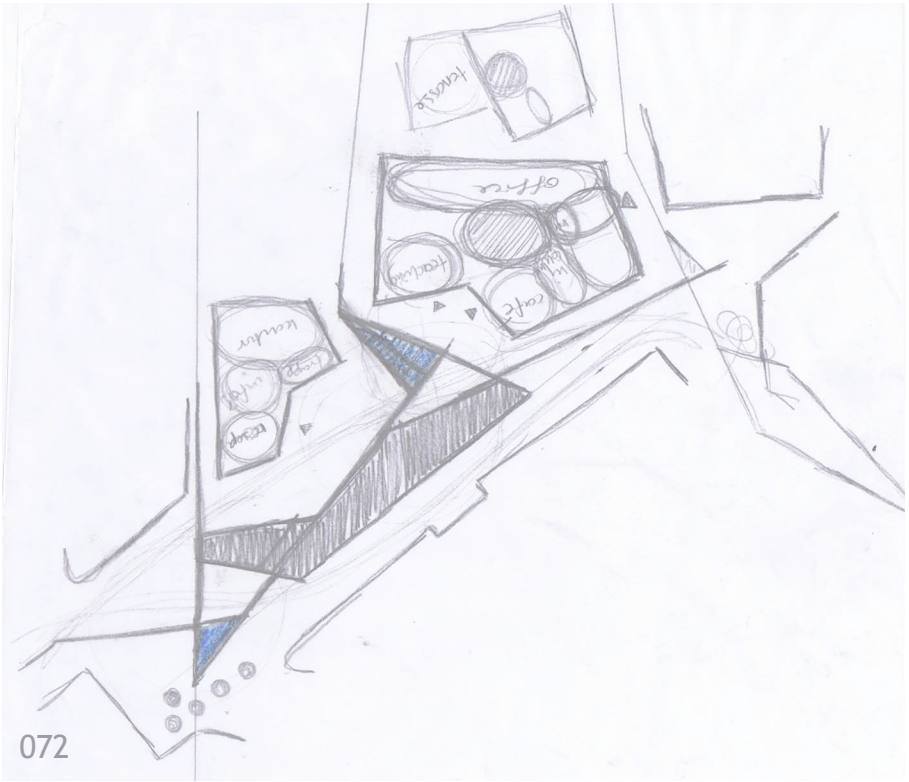
How can we exploit the materials available?

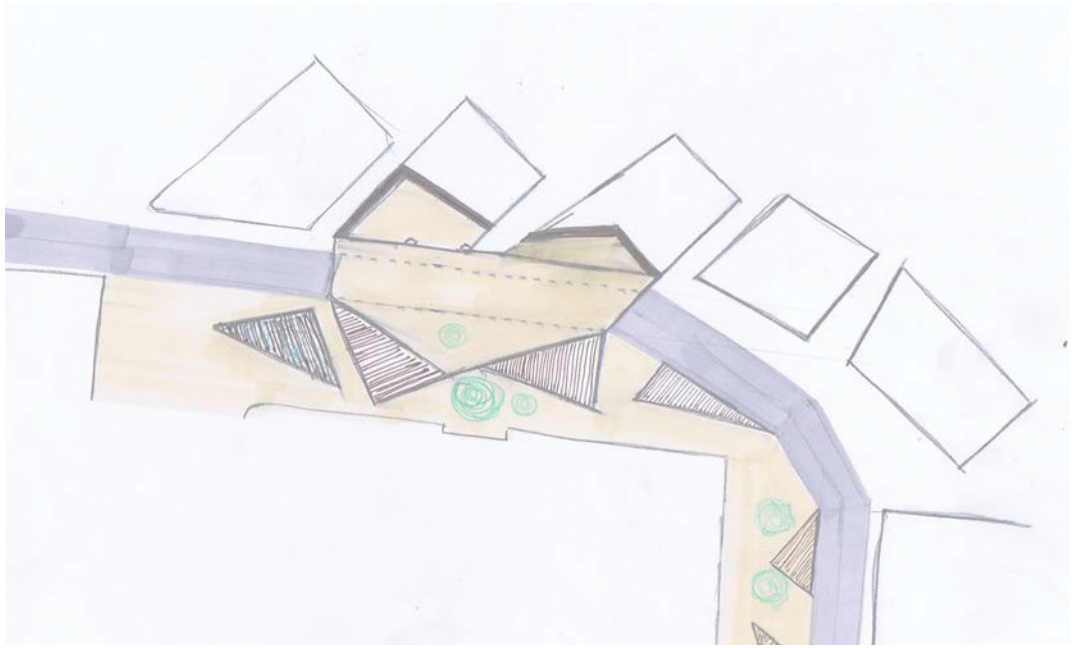
Can a function wall be a common feature for both projects?

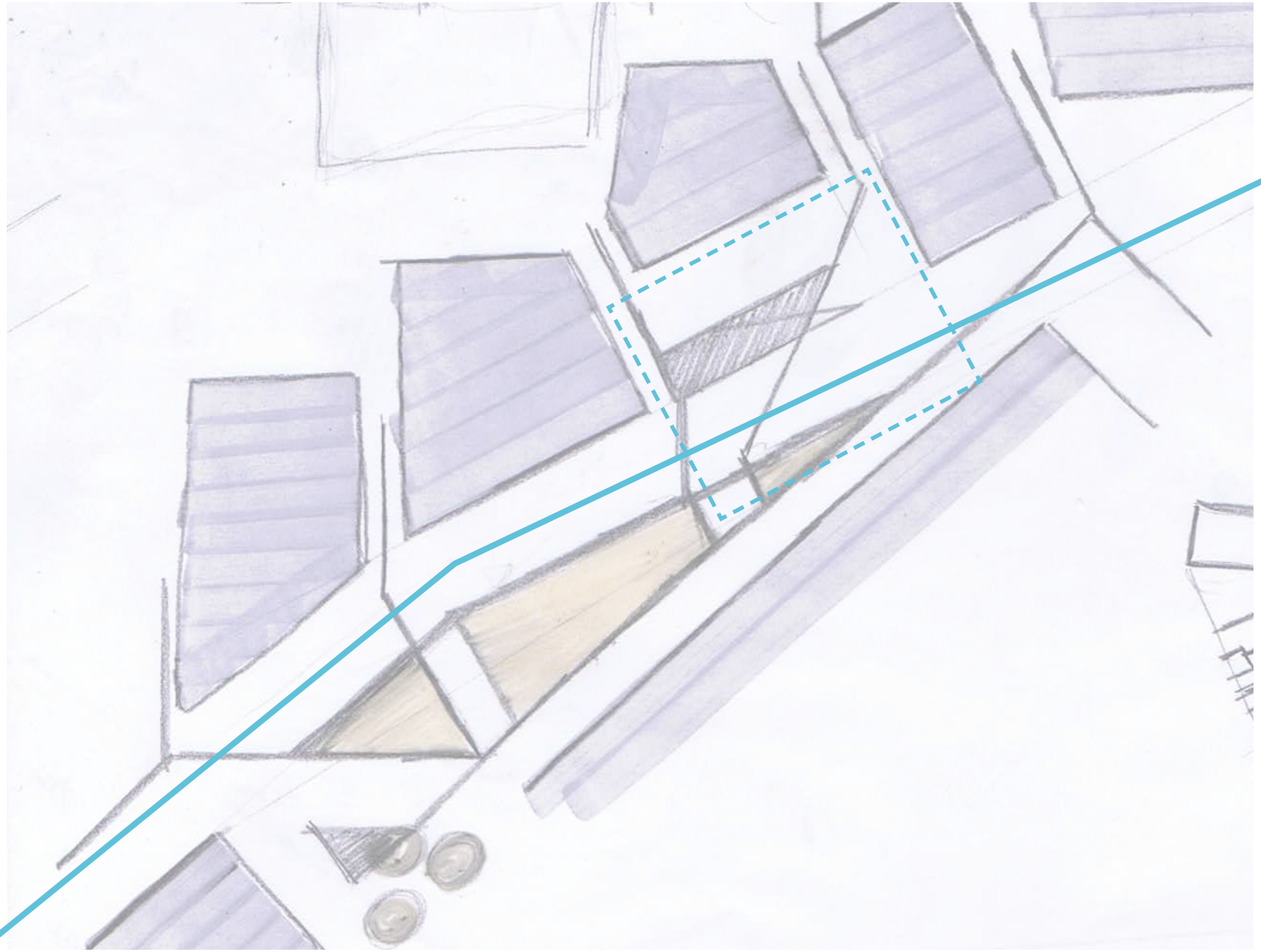
What building lines should we follow? On the south side the strict diagonal shapes lie, while on the other the chaos of Aba Shawl dominates. Do we want to mix the two?





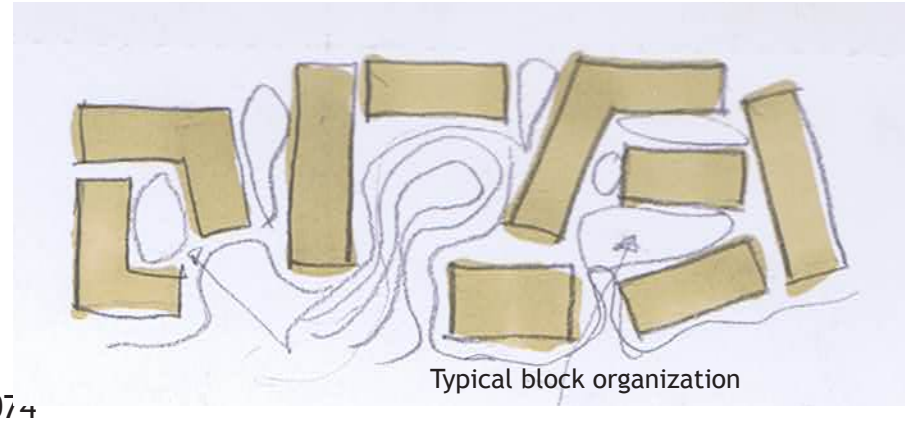




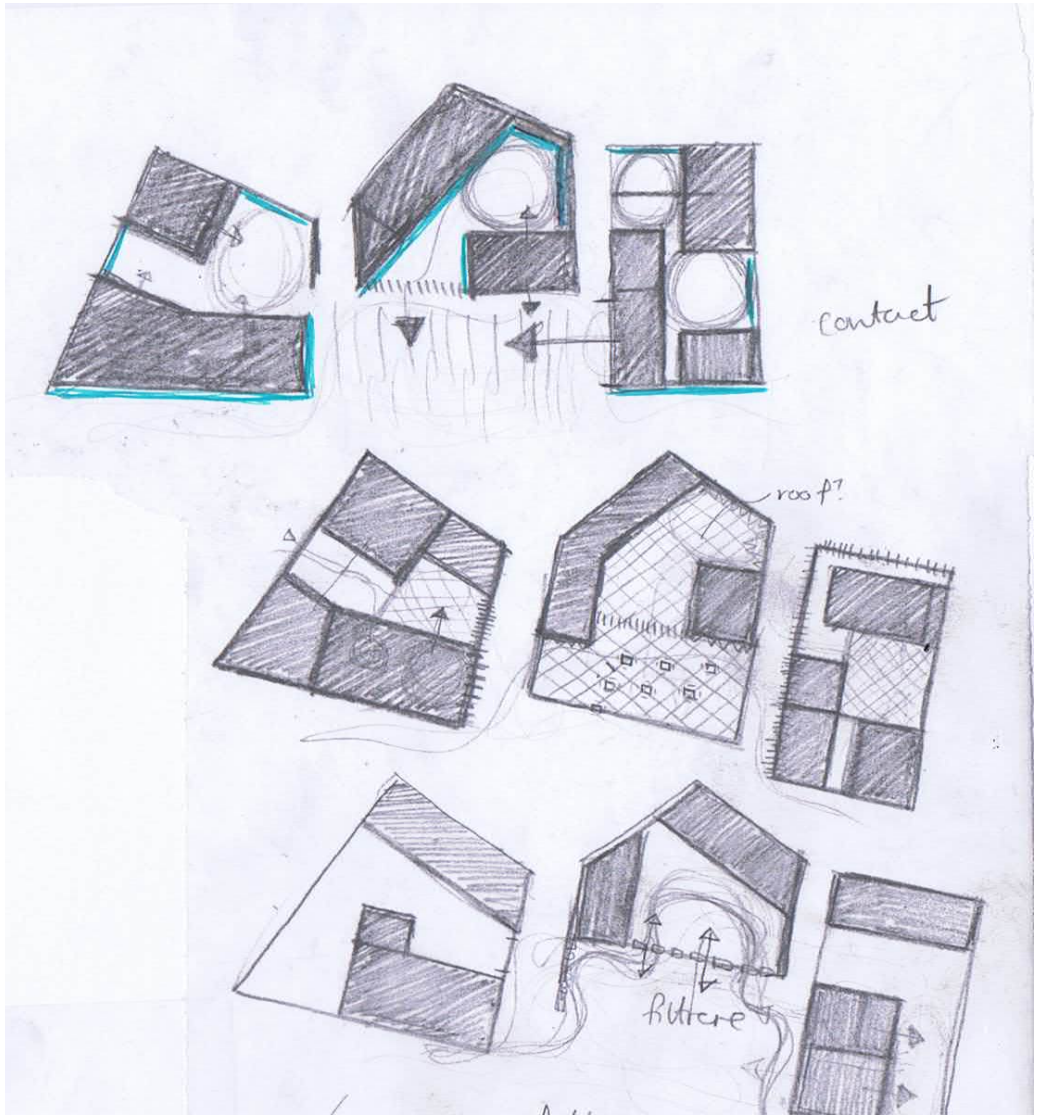


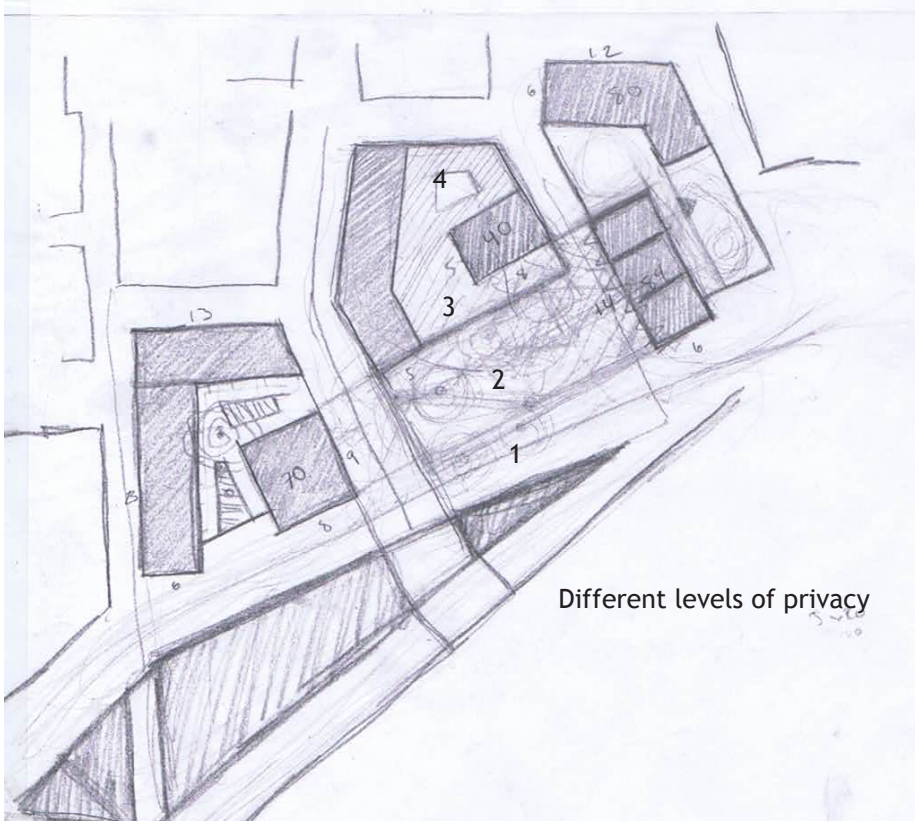
Building typology

The traditional agdo and hidmo are occasionally found in Aba Shawl, but the normal square buildings is in majority. These volumes are scattered in an unregular pattern within the block, with high fences between them, resulting in an even surface against the street. Can we use the same principle on our buildings?

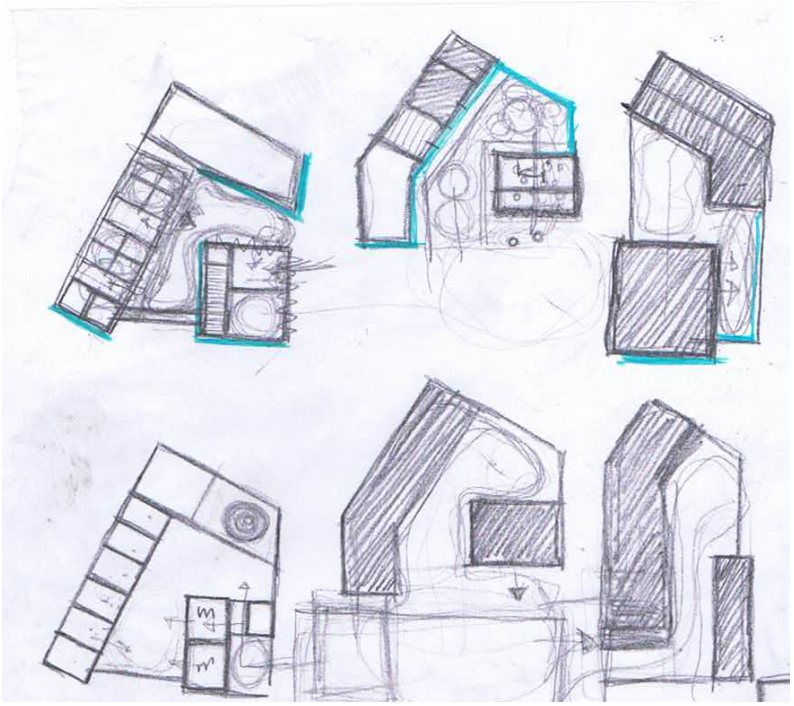


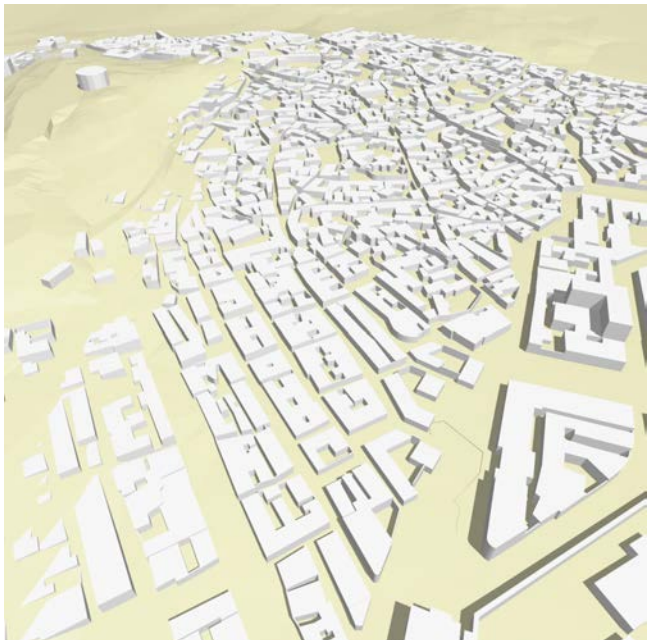
Typical block organization

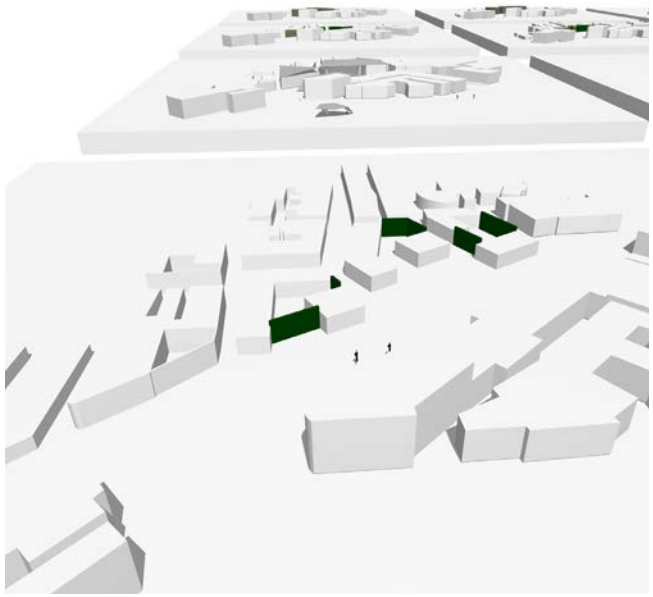


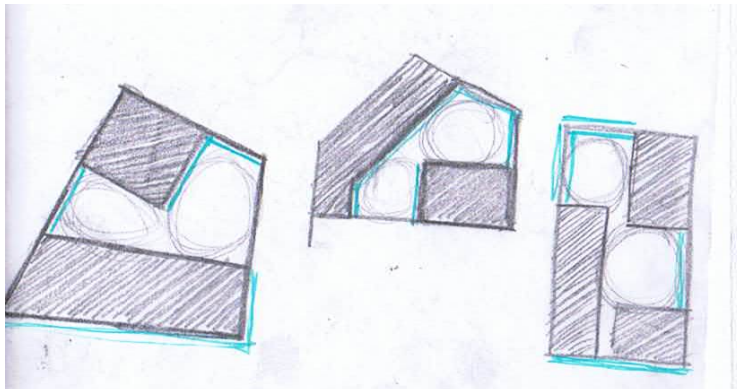


Different levels of privacy

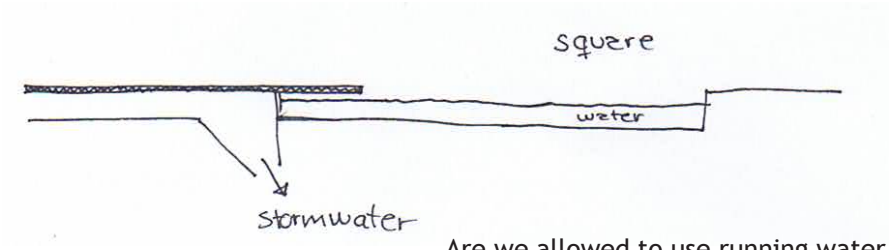




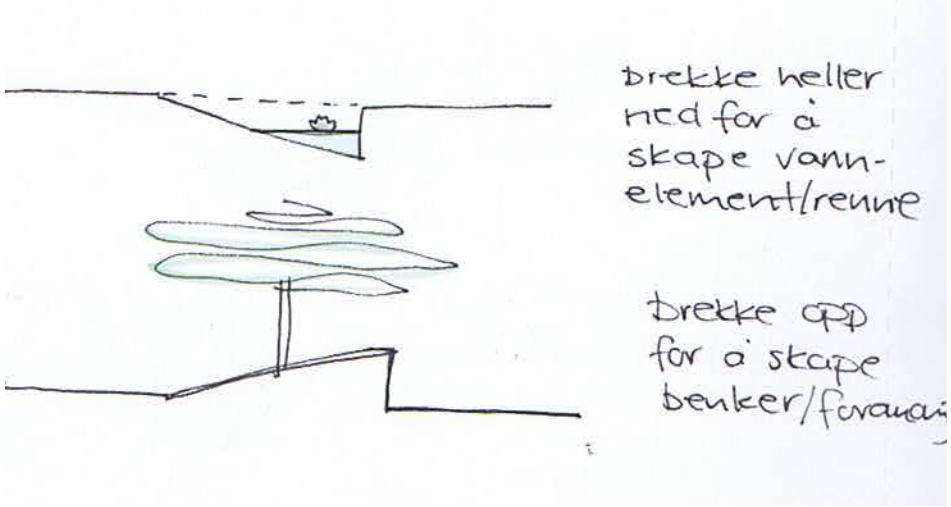


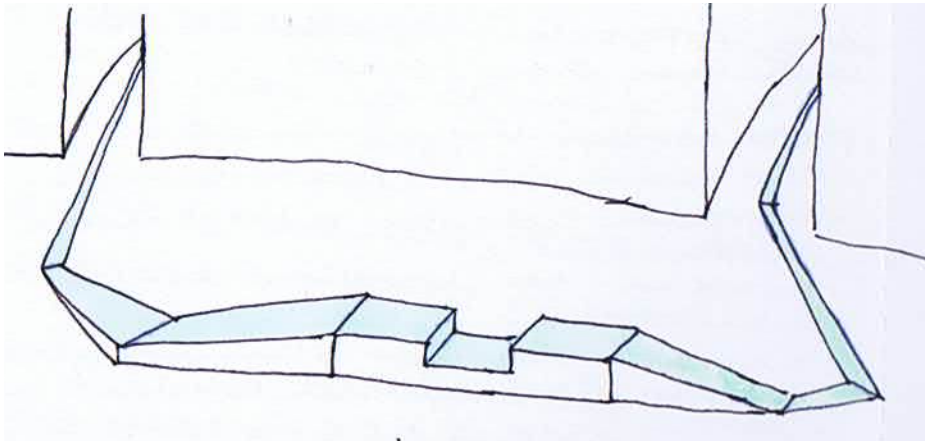


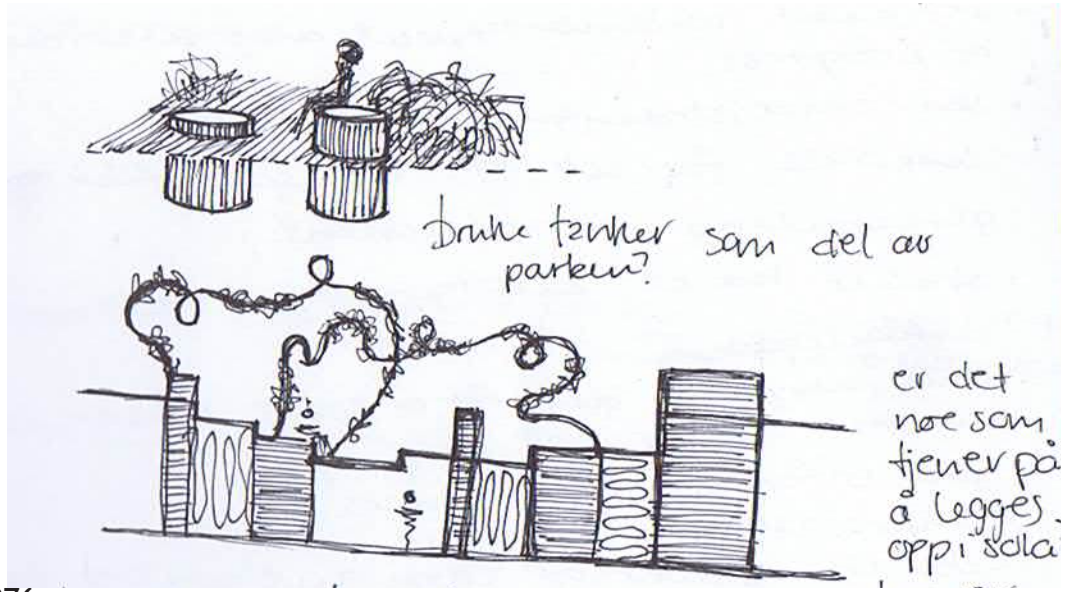
Can we use green walls to attract people?



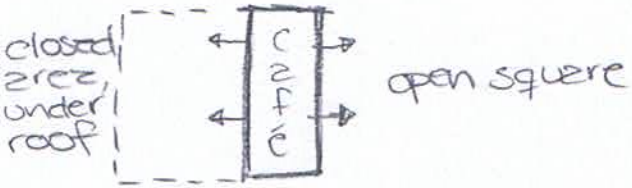
Are we allowed to use running water as a design feature on the square, or is that to go against our own strategy? Is it an abuse of water? Or can it function as inspiration?



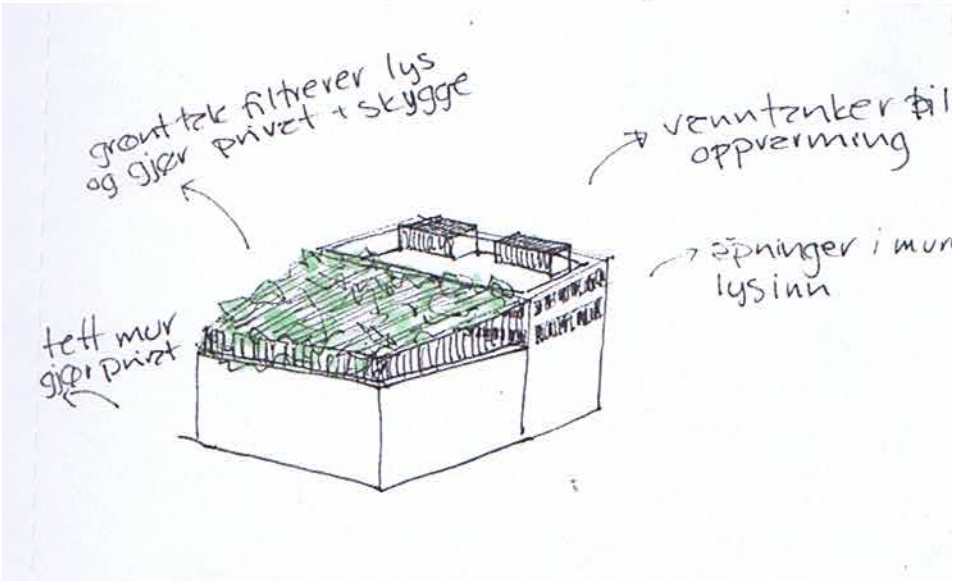


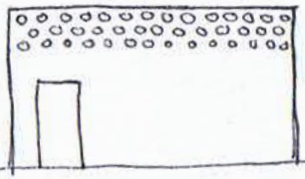


Shade?

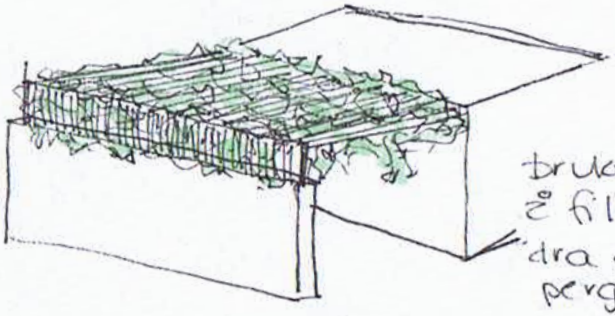


- hemmelige hager

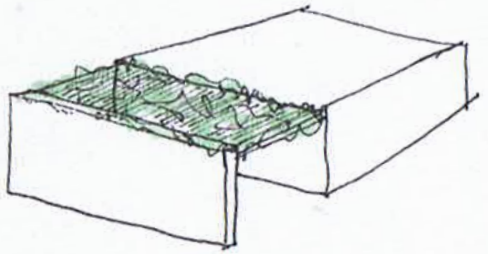




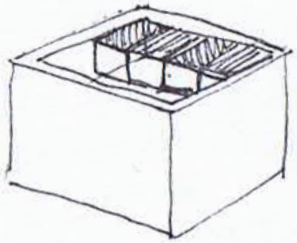
åpninger mot toppen samme materiale hele veien



bruke bambus til å filtrere inn lys, dra det over i pergola „tak"



legge bambus mellom mur og bygning



varme vann på taket

mai hill

situation

Mai Hill is visible from most parts of Asmara. The existing restaurant lies in an axis stretching from the main street in Asmara, Harnet Street, through the Mercato Market area, and up to Mai Hill. It is one of the few public viewing points, and one can easily imagine it as a strategic point for the city. But today there is little activity there. The restaurant has seen better days and the rest of the park has no sort of development. It is mostly used as a toilet for by inhabitants in the area and is not an attractive place to stay. It is not the symbol of Aba Shawl like it has the potential to be.

challenges

_How can Mai Hill become a symbol of the new Aba Shawl, claiming it as theirs?

_How do we place the new water towers at the top?

_How can we organize the allotment gardens?

_Should we keep the existing restaurant or not?

existing situation

Mosque

Kindergarten

The kindergarten is only a few years old and has a big playground surrounding it. While we were in Asmara in February, they were expanding the outdoor area and building high fences out of brick.

Sanitary station

Restaurant

The existing restaurant is in bad condition and today only serves a few types of beverages to the small number of visitors.
The polygonal shape makes it stand out in compared to the other buildings in Asmara, but it does not seem to function as neither a landmark nor a social meeting point.

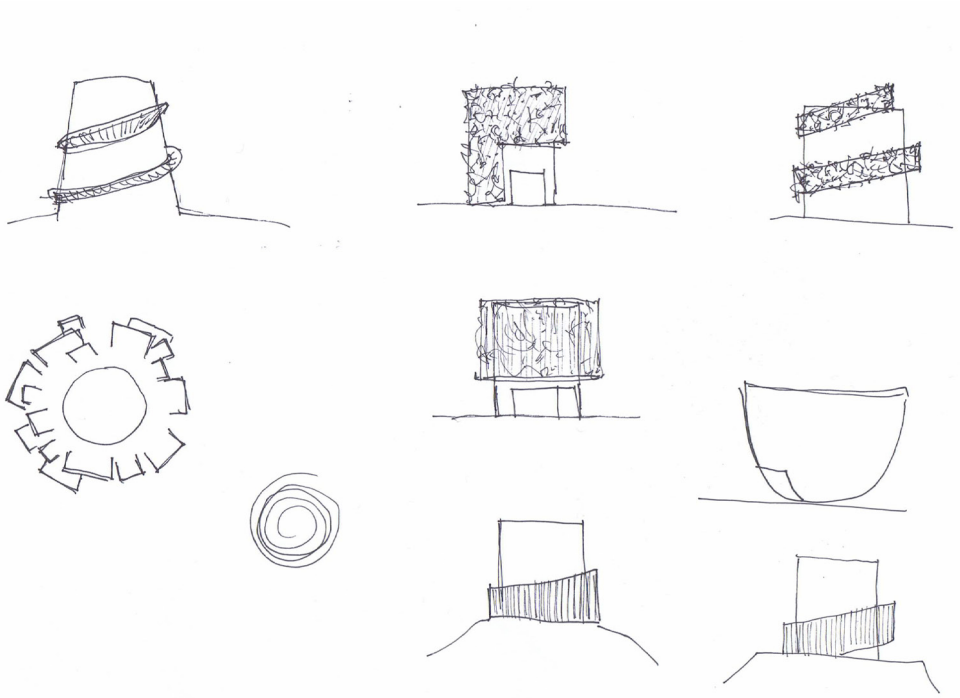
Houses

A few residential houses have been built at the hilltop. They are in very bad condition, made of corrugated steel plates patched together. They do not seem to have any sort of right of ownership to the land. For Aba Shawl to reclaim its green lunge, it is necessary to relocate these houses. An available plot north west of Aba Shawl can be used for this purpose.

Green areas

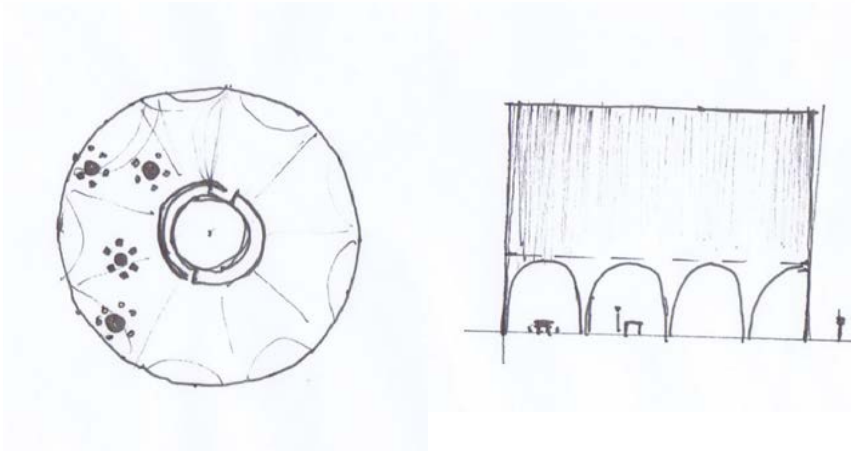
The park has no type of development. Tall eucalyptus trees and cactuses are the only vegetation there.

Sanitary station

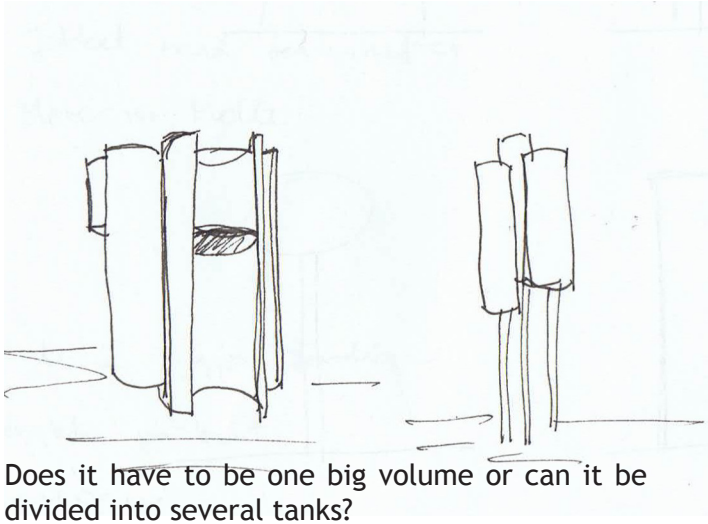


Can we add green walls to make it a symbol over the new Aba Shawl? (Ecoboulevar, Madrid)

What can a water tank look like?



Because of the elevation, a space occurs underneath the tank. This space can be used for a café and viewing point over the city.



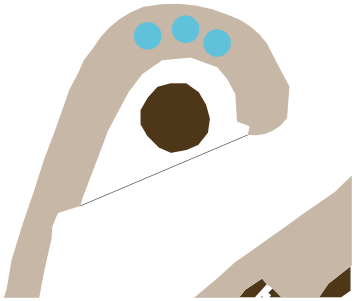
Does it have to be one big volume or can it be divided into several tanks?

water tower

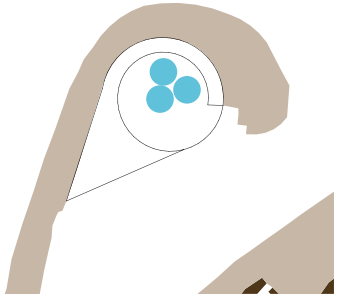
900 000 l

We have based our calculations for the volume of the water tanks on a daily consumption of 50 liters per capita per day. Today, many of the inhabitants of Aba Shawl have as little as 5 to 18 liters per day. The new water distribution system gives better access to water, and together with an assumed increase in wealth, this will give a higher consumption level. With 15 000 people living in Aba Shawl today, this gives a daily consumption of 750 000 liters per day. A security factor of 20 % is added to handle the unstable water distribution network in Asmara. This gives a volume of 900 000 liters.

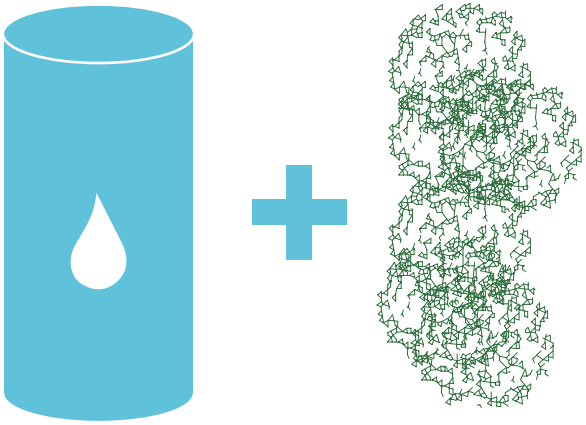
It is necessary to elevate the tanks an additional 8 meters from the top level of the hilltop to get the required water pressure for distributing water to the inhabitants of Aba Shawl. This gives guidelines for the design.



Keeping restaurant and adding watertowers



Demolishing restaurant and placing new water towers



What do we do with the former restaurant and the new water tower?

One possibility is to keep the existing restaurant and arrange the new tower in interaction with this building. If building one water tank, this would be of about the same hight and diameter as the restaurant, creating two equal sylinders at Mai Hill.

If we look at the water tanks in the rest of Asmara, they all seem to have a volume of 500 cubic metre. If using a similar size for the tank, this would mean that we could have a few smaller water tanks insted of one big.

We have chosen to look at a suggestion for the water towers that involve demolishing the restaurant. Both alternatives are possible, but we felt that the restaurant does not have any special qualities that it is important for us to keep, and therefore more inspiring to suggest something new that can be a better symbol for the new Aba Shawl.

Adding green walls as a part of a symbol effect.

allotment gardens

principle

_Connecting the streets from Aba Shawl to the new pathways over the hilltop.

In the allotment gardens, the area of land you get is based on how many family members you have and whether you have the possibility to grow vegetables in your own backyard or not.
If one subtracts the area needed for communication and common functions, an area of about 17 000 sqm is left for the allotment gardens. We suggest a minimum plot size of 20 sqm per family. This gives the possibility of developing 850 gardens. A rough count suggests that Aba Shawl consists of about 420 backyards. This means that it is possible to develop the system to also cover other areas of the unplanned city in the future.

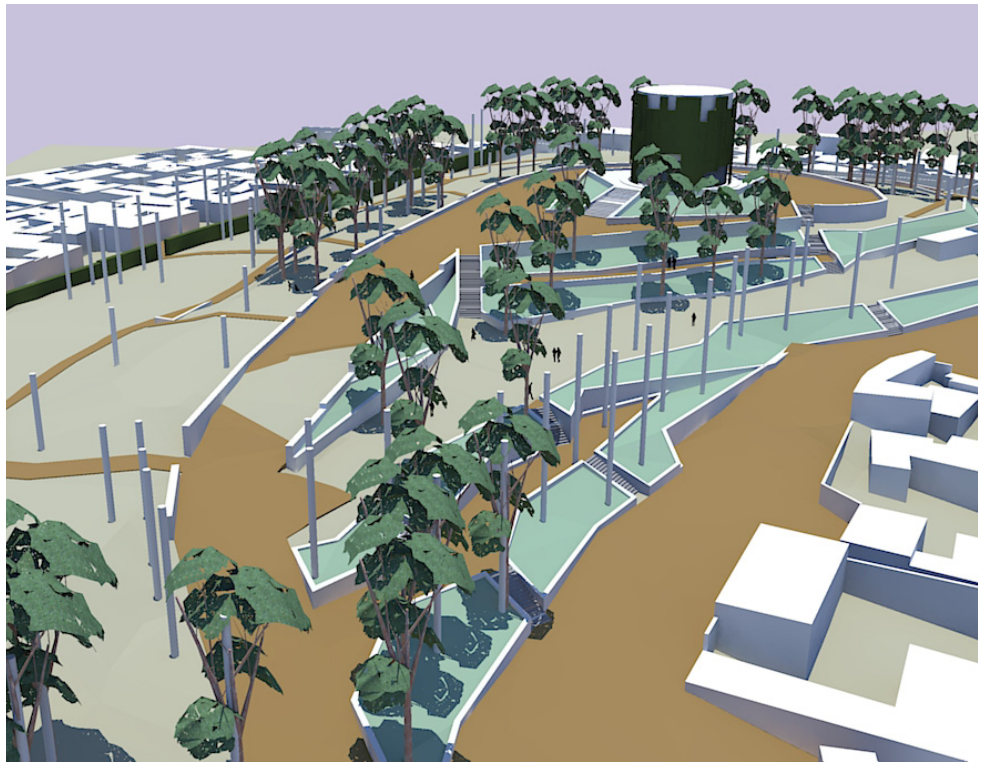
over designing

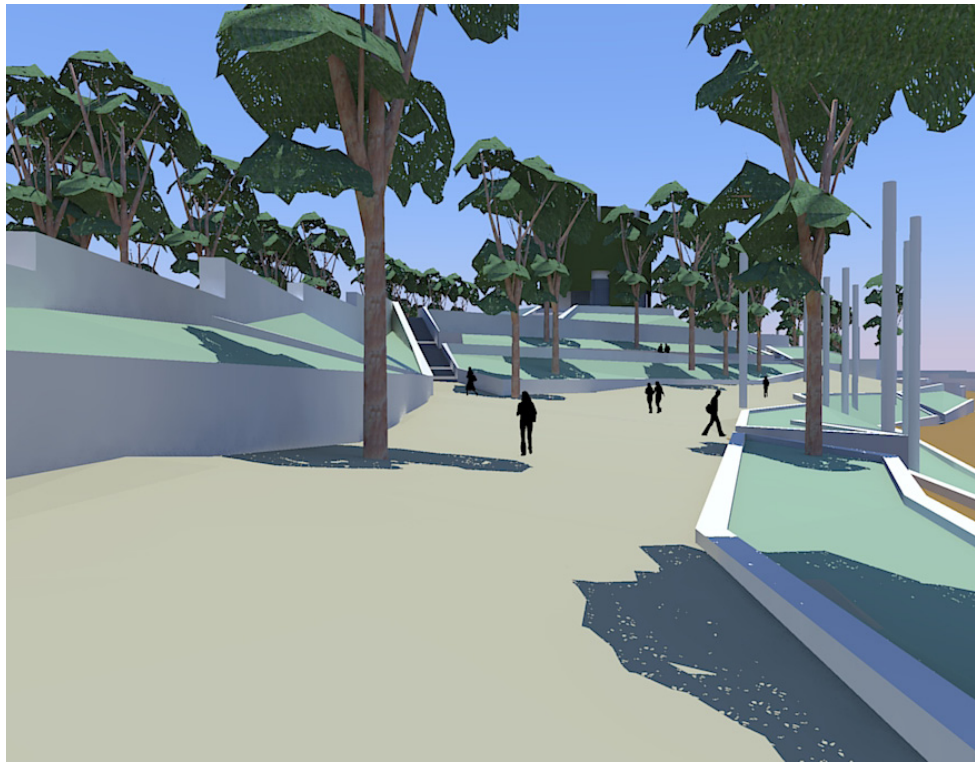
Once again, we started up with over designing.
The public park we created towards Aba Shawl made a border between the allotment gardens and Aba Shawl. The allotment gardens would look more like they belonged to the former unplanned area than to Aba Shawl.

After discussing this we decided that the road leading up to the water tower is left as the public part of the hilltop, while the allotment gardens surround it and cover the entire rest of the hill.

This meant doing smaller interventions in the eastern part of the hilltop than what we had suggested for the public park.

Plan, 1:2000





rejected design