



GREEN AQUEDUCT

G rass

- Increasing the amount of greenery,
- Use of animals for natural green growth

R evitalization

- Renewal of the historical aqueducts
- Attractiveness of the district in relation to neighbouring areas

E cology

- Increasing environmental awareness
- Rainwater utilisation

E ducation

- Education in the cultural centre
- Creating community spaces

E nvironment

- Habitat of people and animals
- Community connection

N ature

- Surrounding of housing with vegetation
- use of natural materials

MAIN PROBLEMS



ISOLATION

As a result of the migration to Barcelona, the construction of housing estates with economic standards and different typologies began. This process led to a repetitive and serial composition of isolated blocks separated by large green spaces. Unfortunately, this typology has also had negative effects, as it has disconnected these neighbourhoods from the rest of the city, depriving them of amenities, shared infrastructure and clearly defined public spaces.

DIVISION

The district is made up of two main areas. The first is the lower metropolitan and business district, where the most important shops and facilities such as Ciutat Meridiana, Vallbona and Torre Baró are located. It is here that Plaza Roja and Plaza Verda are located, which are considered more exclusive and distinctive among the rest of the district.

The second area is the upper zone, mainly residential, organised as a linear block on a steeply sloping site. Another block with underground access has recently been built here, located next to several public spaces and other facilities. This part of the district offers a peaceful and picturesque environment for residents.

SOCIAL DIFFERENCES

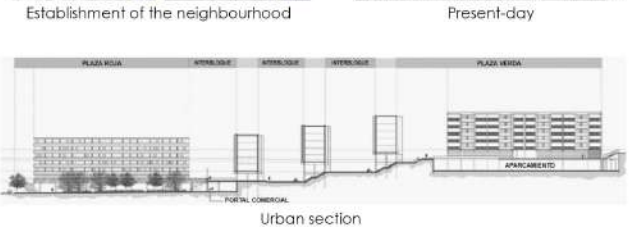
The high level of vulnerability and inequality in a neighbourhood is directly linked to its ethnic diversity. Foreign-born residents make up as much as 33.3% of the district's total population, which exceeds the city-wide average of 25.1%. It is worth noting that there is a greater presence of Honduran, Moroccan and Pakistani nationalities in the neighbourhood.

LOW LEVEL OF EDUCATION

Only 18.3% of people have completed secondary school in this neighbourhood, which is lower compared to the average of 25.1% in Barcelona. In addition, only 7.8% of residents have chosen to continue their studies at university or get a higher education. In comparison, the figure for the rest of the city is 37.8%.

It should be noted that 69.1% of people in this neighbourhood choose not to participate in any activities other than compulsory ones. This is a higher percentage compared to the rest of the city, where only 37.8% of the population does so.

In addition, this neighbourhood has a low average income per person or household, with an unemployment rate of 12%. There is also a high rate of empty or abandoned housing, as well as problems with evictions and the presence of uninhabitable buildings. These problems affect communities that share common areas and spaces.



Schools

ANALYSES

green aqueduct



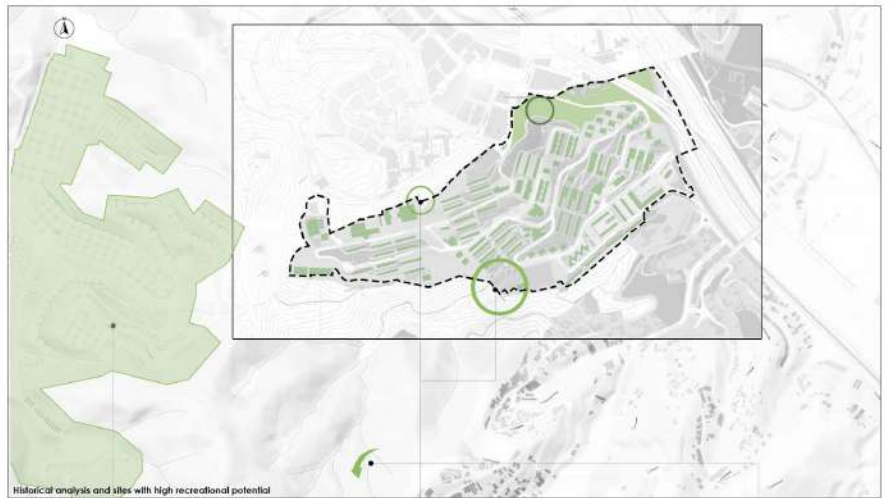
Communication analysis



Nakew analysis



Height analysis



Historical analysis and sites with high recreational potential

CEMETERY COLLSEROLA



Collserola is a typically Mediterranean cemetery with a diagonal layout consisting of three or four blocks of niches, which are usually five storeys high. One of the main features of this cemetery is the abundance of vegetation. As you enter and throughout the grounds, you are reminded that you are in a nature reserve.

The cemetery is divided into 18 plots and is the prototype of a modern cemetery that can be reached by car. The site is representative of the period in which it was designed, leaving the restoration of stately mausoleums to other cemeteries in the city. It is a functional cemetery where simply arranged niches are the order of the day.

By the end of the 1960s, the Montjuïc cemetery had reached full capacity.

AQUÈDUCTE DE CIUTAT MERIDIANA



The canal was designed by Andreu Masferrer, who owned the water rights to the Ripoll and Caldes streams, and was financed by the banker Manel Girona. The Baix Valls aqueduct was more than 18 kilometres long and transported more than 1,700 cubic metres of water every day.

These aqueducts used the bridges of the Collserola mountain to facilitate penetration from the outskirts into the interior of Barcelona. You can still see the bridges by which they saved the inequalities of the streams. Where we are now, the aqueduct crosses the Tapielès stream. A little further on, but still in Ciutat Meridiana, we can find another large bridge where the aqueduct crosses.

Some parts have been restored, but there are still parts of the old aqueducts up there, which the inhabitants and the historical archive of Roquetes - Nou Barris do not want to lose.

CASTLE TORRE BARÒ



Now one of the most characteristic symbols of Nou Barris, the Torre Baró castle stands between the districts of Roquetes and Torre Baró. The name 'Torre Baró' actually comes from another 'torre' that no longer exists and stood on the site of a metro station, a residence belonging to Baron Píndol.

Despite its medieval appearance, Castell de Torre Baró, which dominates the area, was built in the early 20th century.

Today it is the environmental education and information point of the Parc de Collserola. Among other things, it offers guided tours of the castle, tours of the area and educational workshops for all ages. It is one of the best viewpoints in Barcelona, offering visitors the opportunity to admire Nou Barris, Horta, Sant Andreu, Sant Martí, and further down the Besòs River and the Collserola foothills, with the towers of Santa Coloma, Sant Adria and Badalona.

ANALYSES

CONCLUSIONS OF THE ANALYSES

green aqueduct



Resource

There is no protected nature area within the study area, but immediately beyond the western boundary is a park listed on the Natura 2000 register. Greenery on the plot is only visible between the dwellings, in the form of undeveloped spaces with random trees. To the north of the plot there is an area of uncultivated but biologically active land. Shrubs and low trees are visible on it. There is a lack of development and parks, conducive to recreation and outdoor leisure activities.

Conclusions

The undeveloped green spaces should be used as parks or landscaped areas for social contact and integration. A good connection between the development area and the Natura 2000 park area, hitherto unused, should be provided for natural development and maintenance systems.



Resource

A significant area of land in the study area is occupied by concreted surfaces, which do not absorb water that is valuable in hot climates. In addition, none of the flat roofs on the residential buildings are green roofs, but simple non-biological roof coverings. The spaces between the office buildings, which could be a green resting zone for employees, are concreted and undeveloped.

Conclusions

Any unused concreted space in the study area should be taken care of and transformed into a permeable surface. Roofs on residential buildings should be developed as green roofs or retention basins to integrate and encourage outdoor leisure activities.



Resource

The development site is located on varied terrain where the elevation from 50 metres in the east of the site transitions smoothly to 150 metres. In addition, the southern part of the site is a south-facing slope, the central part is a meadow area and the northern part is a north-facing slope.

Conclusions

The slope of the slope should be taken into account when designing the greenery, and appropriate plants should be selected for the sunshine. The slope towards the motorway should be taken into account when isolating buildings from noise, as all buildings are exposed on the eastern side.



Resource

Most of the residential buildings existing in the study area are characterised by 5 or 6 storeys. The only single storey buildings are small shops and a school. There is a lack of variation in the height of the buildings here, and the high density of the population in the area makes it impossible to dedicate the areas between them to green space. Due to the multiple storeys, residents can feel the noise from the motorway in an unprosperous and unmuffled manner, and the sound bouncing off the large slabs further exacerbates the noise.

Conclusions

The potential of tall buildings should be exploited to create green facades and green balcony loggias passing through all flats. The greenery surrounding the buildings will help absorb noise before it enters the flats. The flat roofs of residential buildings should be used as green terraces and retention basins.



Resource

The development site is connected to the city by three motorways, which directly border the site on the eastern side. There is also a railway line and station adjacent to the site. There are a number of bus stops in the area, indicating that the site is very well connected to the city of Barcelona. There is also a bus service to the nearby cemetery, which also has a substantial number of stops. The metro also reaches the neighbourhood and the station is located in the central part of the neighbourhood.

Conclusions

Special care should be taken to insulate residential buildings from noise and pollution directed from the motorway and railway line. Thanks to the very well-planned transport infrastructure, there is good access to the city, which results in the neighbourhood not having to become a self-sufficient small town.



Resource

The area of the site includes two aqueducts that once supplied water to the further districts of the city.

A castle is visible from the site, located a short distance from the Ciutat Meridiana district. The castle could be a great asset to the area and a dominant feature in the viewing space. On the western side, in the centre of the Collserola park, there is a cemetery, which is a very important aspect in the life of the residents. It is well connected to the neighbourhood, so for the time being it is one of the more frequently visited places by the residents.

Conclusions

The aqueducts should be cared for and commemorated because of their high tourist, aesthetic and historical potential. The north slope should be developed into an ecological leisure area with an idyllic aura.



Resource

A significant functional part of the study area is occupied by multi-family residential buildings, with an average of 5 storeys. A sizable part is also occupied by educational facilities such as schools, kindergartens and a library located in bespoke close proximity to the site.

Conclusions

Adequate public awareness of important educational outlets should be ensured, and the well-being of these facilities strengthened. Education should be one of the most important factors in shaping society, and the buildings under construction should engage residents in mutual development.



Resource

In close proximity at the northern boundary of the district is a large area of industrial establishments. Catering facilities, grocery shops or educational facilities are mostly visible in the study area.

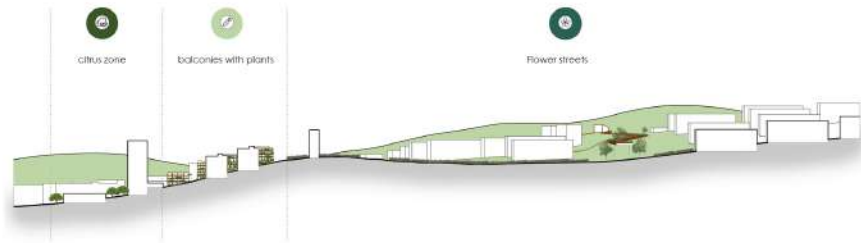
Conclusions

Services for daily needs in the neighbourhood, such as hairdressing, beauty parlours, small neighbourhood shops and cafes, should be improved. The low level of education is not caused by insufficient educational facilities, but by cultural differences or pathologies in the community.



Slope - pasture for sheep and goats

A hitherto unused slope in the northern part of the district will be arranged as a pasture for sheep and goats, who will naturally mow the grass and fertilise the area. The space will be an attractive place for rest and recreation, and an attraction for children. The slope will be equipped with infrastructure necessary for breeding, such as hay barns and a barn where the animals can take shelter.



Green roofs and balconies with plants

Unused flat roofs on residential and office buildings, will be transformed into green roofs and retention basins, which can also be used by residents.

The reservoirs on the green roofs, and between the buildings, will allow high temperatures to cool down, as well as retaining water valuable for animals and crops.



Sections

The area will be divided by balconies thematically and the different strips, arranged in relation to each other according to the levels, will have different types of plants. This arrangement will allow for a free exchange of crops between residents, and thus deepen human relationships.

The plants will be selected according to the light they need, and the planned plantings include melliferous flowers, citrus vegetables and herbs.

PROJECT

BIRD-EYE VIEW

green aqueduct



- KEY**
- parklet
 - green roof
 - retention tank on the roof
 - footpath from the station to the aqueduct
 - footpaths
 - balconies with plants
 - outbuildings for sheep farming
 - cultural and recreation centre
 - green aqueduct - footbridge with crop exchange

The project involves the creation of three areas of change, an eco-pasture, a sports park and a cultural centre.

Balconies with crops will be created around the residential buildings, and roofs will be turned into green roofs and retention basins.

There will be parklets between the blocks for residents to exchange vegetables, and a pedestrian walkway planted with flowering plants will lead to the Green Aqueduct from the station station.

PROJECT PLAN

green aqueduct



green balconies

to insulate the noise-exposed residential buildings, they will be surrounded by balconies with themed plants. The vegetation will help absorb sound and cool the buildings in hot climates



green passageway

the neighbourhood will be divided into themed growing strips, in which seeds of specific plant species will be distributed.



green roofs

unused roofs on residential and office buildings will be transformed into green roofs and retention basins, which can also be used by residents.



rainwater collection

reservoirs on green roofs, and between buildings, will allow high temperatures to cool down, as well as retaining water valuable for animals and crops.



parklets

the spaces between the buildings will now become places for inter-neighbourhood gatherings through the creation of parklets where small-scale cultivation and sales will take place, and consequently human interaction.



eco pasture experiment

the collection of rainwater from the surrounding buildings will serve to green the unused slope and introduce livestock to the area. The experiment has been divided into phases, which involve carrying out the greening process on a small area of the slope and checking which conditions are optimal for maintaining the entire slope.



local craft

animals living on the greened slopes are a source of food and textile products; the area will create jobs for local residents, caring for animals and producing e.g. cheese



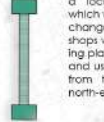
footbridge

steel bridge serving as a local center in which people living in the immediate vicinity could meet, trade and get familiarised with the history of the neighbourhood - each end of the bridge meet the remains of historical aqueduct.



neighbour's center

a local cultural centre, which will be the nucleus of change - this is where workshops will be held on growing plants, building parklets and using animal products from the hillside on the north-eastern part of the site



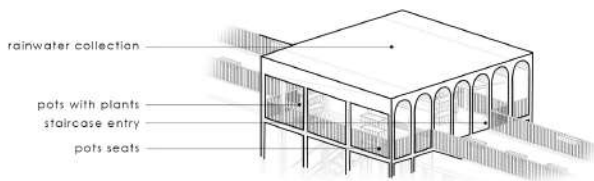
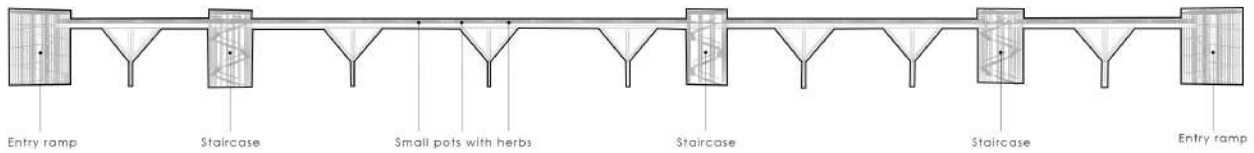
sport boost

introduction of new paths linking the park area to the surrounding paths to Colliera Park, design of sports facilities and replacement of the surface



GREEN AQUEDUCT

green aqueduct



Visualization

Wooden footbridge is crossing on the north-south axis the Ciutat Meridiana neighbourhood being the connection between historical heritage of the area - the parts of an aqueduct and present-day residential development. Its main goal is to serve as the integration space for the local residents, in which they could gather, meet, trade. The access to the footbridge is provided by two ramps at each end of the construction and three staircases connected to the pavements below. The construction is equipped with numerous benches and seats, plant storage spaces and plant pots.

PARKLET DESIGN

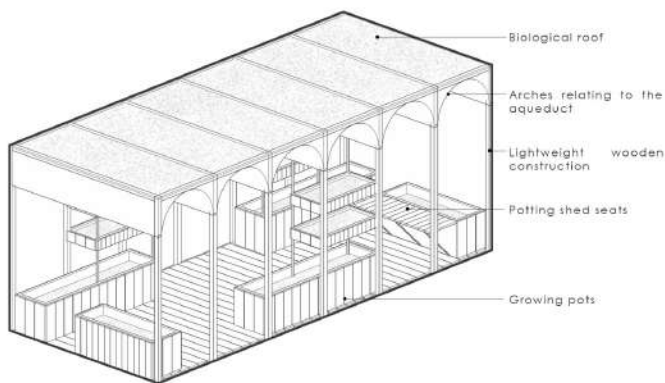
green aqueduct



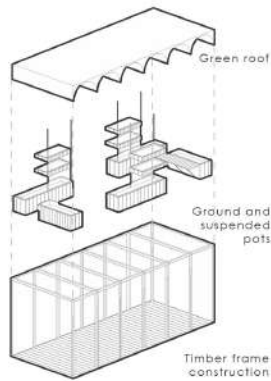
Visualisation of the parklet



Interior visualisation of the parklet



PARKLET - axonometry



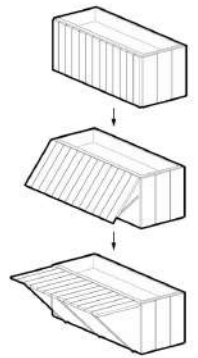
Construction scheme

PARKLET

A parklet designed for shared vegetable and fruit growing by neighbourhood communities. The facilities will be located between residential blocks and along roads. The shape of the canopy will resemble the historic aqueducts located in the study area, which will personalise the neighbourhood. The parklet is formed from a timber frame structure, and covered with a green roof that will absorb rainwater. Inside, plant pots are planned, tall above-ground ones for tall plants and smaller overhanging ones for lower plants.

POTS - SEATS

The ground pots also act as seating for residents. The possibility of stopping in a green parklet will encourage people to stay outside and share the cultivation together. Seating is made possible by the movable housings of the pots, which have to be turned upwards from the bottom, which at the same time extends the supports for the seating from the centre.



Growing pots

GREEN BALCONY DESIGN



Visualization of balcony with plants