Reflection

With the reflection, I will revise the work that I have done, in both method and design. It is important to be able to reflect upon the work that has been done. I will discuss the relevance of the project in different fields as well as the dilemmas that I encountered, and finally I will discuss the process of the project itself, reflecting on myself.

Methodology

Research and design are two aspects that are linked to each other. During the process of design the research still continues. Whenever you come up with a new idea for design, no matter if it is on large or small scale, it will not fit into the design immediately. There could be new problems that come with the idea and there will always be questions that need to be answered before you can truly integrate it into the design. Research has to be done in order those answer the questions. It is a process of switching back and forth while taking a step forward every time you switch. Research is the frame work and the research question leads to design questions which in turn lead to a design. The design is thus the test of the research question.

The method used can be divided into the following parts: problem statement and potentials, analysis of the area, design interventions and

First of all, it is important to show what the problematics are that come with the leftover spaces, so a clear image can be formed. However, it is also important to show that these problems, can also be potentials when viewing it from the right angle. In this case, the spaces are isolated and lack identity of their own, but have the potential to become part of a larger network or a place of their own.

The analysis consists of several steps in different scales. It starts on the large scale which is most likely on the city level, covering the leftover spaces that are present around the infrastructure in the urban environment. The analysis of the area always come with researching the past, present and future. Past represents the historical development of the area; how is it originated? The present shows the current situation with its pros and cons. The future refers to the (governmental) plans that are already made and are set to happen, because these could be factors that will affect the direction/outcome of the design. These could be new development in dwelling and offices, or even the demolition of certain areas or structures.

On large scale, it is important to look into the networks and large scale structures. While on smaller scale, the focus should lean towards spatial aspects. Of course, the two scales should be used linked to each other, so neither aspects will be lost in the process.

The next step would be making variants to find out what the extremes are and how these could be implemented in the area. The method used are research by design and scenario planning. Both were needed in order to create plausible variants with their respective results. Each variant was based on a certain theme or direction of design in mind. At the start of making these variants, the idea would elaborated upon as if it was to make a statement. After the initial 'design', it would be integrated into the actual location. This meant that certain changes needed to be done in order for the idea to work, for topographical differences between structures, limits set by regulations and plausibility/feasibility of the design. With every variant comes other sets of questions that need to be answered before further steps can be taken. By researching these variables and questions, the design can evolve further and become more evident.

Then comes the evaluation or reviewing of the variants with their respective pros and cons, compare these to each other and decide which one is the better choice or which ones are needed to create the 'best' choice. According to the findings of the research and conclusion of the review, the design will be adjusted. There should be a clear direction and set of interventions that can solve the location-specific demands/ wishes on how to use the leftover spaces of the area and from this point on it should progress towards the elaboration, finetuning and detailing of the design.

Relevance of the project

The graduation lab of Landscape Architecture at the TU Delft, also known as Flowscape, is "a studio that explores infrastructure as landscape and landscape as infrastructure, and is focused on landscape architectonic design of transportation-, green- and water infrastructures." (Nijhuis, 2016). "These landscape infrastructures are considered armatures for urban and rural development. With movement and flows at the core, they facilitate aesthetic, functional, social and ecological relationships between natural and human systems. Through design the studio seeks for a better understanding of the dynamic between landscape processes and typomorphological aspects." (Nijhuis, 2016).

In my graduation project, I focus on the spaces that are created by the large scale infrastructure within the urban area. While the structure do provide connection in a certain direction, at the same time also form a barrier for the perpendicular direction. The spaces that are created are situated directly around and in between these infrastructures. Because of this, the effect of interventions in these spaces will follow along the infrastructure and improve an existing flow. However, these spaces

could also be used to improve the perpendicular connection, not only will it then affect the neighbourhood directly around it, but as a connection it also forms a new flow between other parts of the city. These flows can come in the form of people (users), flora and fauna, water, energy, traffic (transportation) etc. The scale we are working with differs throughout the process of project; local interventions, like designing the spatial qualities of a crossing over the highway, will have still have effect on an urban scale (by forming a new connection).

Because of the pollution and noise the traffic produces, the space around these kind of infrastructure are usually limited and monotonous in function. Due to health issues and living conditions, residential areas must have at least a certain amount of distance or barrier between it. Usually these spaces become a buffer zone for the traffic.

With improving technology, the noise and pollution the engines create become less and less. The spaces that were once isolated and not used can be used again. However the image of the space around these high speed infrastructures is ingrained in the people's mind through the years. Even without the high amount of pollution, people will still avoid using these spaces when they become available. The point of view from the people, the users, has to be changed first before the first steps can be made in accepting these spaces again. By giving these spaces a new layer of function, people will more likely use it again and change their view on these spaces in their mind.

Leftover spaces can be found all over the world where large scale infrastructures and urban areas meet. Especially in a small country like The Netherlands, the space we have is limited, so by utilizing these leftover spaces, we can increase not only our potentials, but also be more efficient in the space we create.

Ethical issues and dilemmas

While the goal of the research is to find a way to make use of the leftover spaces, at certain situations the buffer these spaces were intended for are actually (still) necessary.

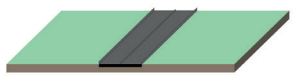
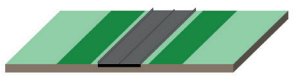
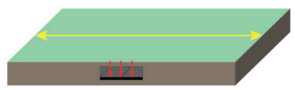
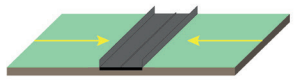
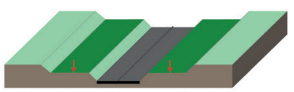
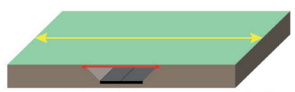
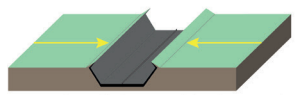
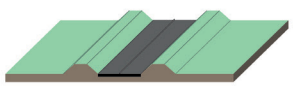
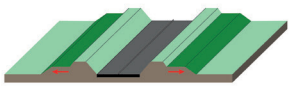
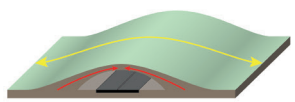
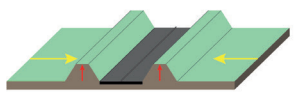
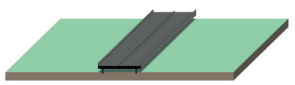
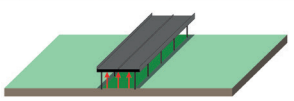
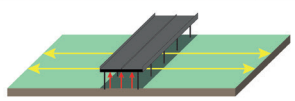
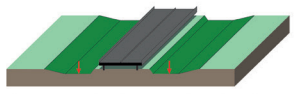
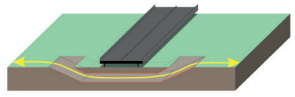
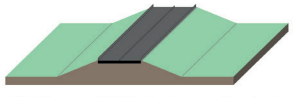
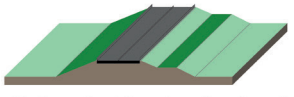
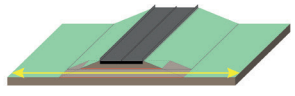
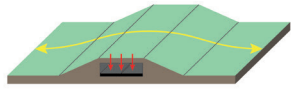
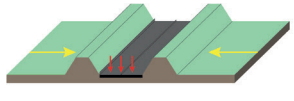
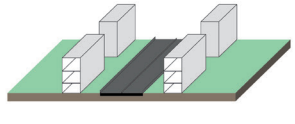
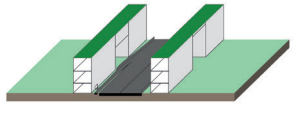
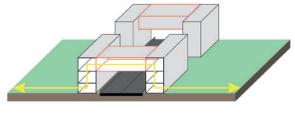
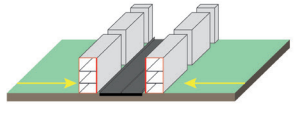
In the design the main goal on larger scale was to make a recreative connection between the city centre and the recreative green area up north. On smaller scale, it was to redesign the space near where the infrastructures cross the Rotte. This has been achieved to a certain degree, I developed a set of ways to deal with the leftover spaces. However, this was only focused on the types of leftover spaces present in the design locations. There are still certain typologies missing with what or how we can deal with these spaces, like the ones in a highway node. The table on the next page shows the different kinds of interventions that could be done to make use of the space around it. However, this scheme was incomplete due to it focusing too much on the physical aspects and lacking the functional aspect of it.

The goal of the research is to see how the spaces could be used to improve connections and the quality and use of these spaces. This resulted in several sets of design interventions at different areas. The solution or strategies chosen for each of these variants were based on several aspects, such as typology of the highway and functions in the surrounding. So for future reference, with certain conditions, different types of interventions are possible. These results can be used to improve the spaces around already existing high speed infrastructures inside cities or be used to prevent the isolation and neglectance of these spaces where new large scale infrastructure is built.

With the research of this project, the leftover spaces around large scale infrastructure in urban areas can be transformed and improved. However, it can also be used to prevent such spaces from being created. During the development of cities, the role of the large scale infrastructure that is going to be enveloped as a result of a growing city needs to be clear. The government can make the necessary changes to the infrastructure prior to its envelopment to stimulate certain other large scale connections, like ecological corridors that reaches to inside the cities. It can also prevent the creation the leftover spaces in the future. This will give the developing cities a more sustainable base to build on.

Process of the project

In retrospect, the project was a long process of searching and finding the right direction to follow. It showed me the importance of a structured and consistent way of assessment of the work. The fact that I missed this aspect had a great impact on my project, especially in the period of my P2 through P3. While my location of the orbital highway of Rotterdam stayed the same, the location for my elaboration changed a few times. At first it was near the train station of Schiedam during my first P2 (see appendix), next it was located in the south of Rotterdam for my P3, and finally it switched to the area near Kralingse Bos. Throughout the project, it became clear that generating new ideas and suggestions as design interventions was easier for me compared to deciding which variant should be elaborated on. This also caused me to do basically the same process two times over at the different locations. What I lacked was a goal that was set beforehand and a structured way of assessing the variants. By setting an initial goal, the variants can be compared to each other based on how much these achieved the goal. Each of the variants have their own pros and cons, sometimes it is hard to compare these to each other, because while some characteristics are cons in one variant, these same characteristics could be pros in the other variant. So the initial goal in combination with the SWOT analysis method helped me organizing and structuring the assessment of the variants.

Base condition \ Purpose	Making parallel connections	Making perpendicular connections	Closing in on the infrastructure
 - The infrastructure and its surroundings are on the same level	 - The strips directly next to the infrastructure can be used to form parallel connections. By using the infrastructure, the connection will be stronger.	 - The infrastructure is lowered into the ground, allowing the space to continue on ground level. The space then can be used for other functions	 - By enhancing the sound barriers, more of the negative side-effects (air pollution and noise) are blocked, making the leftover space around it more likely to be used.
 - The infrastructure is lower than its surroundings	 - The insides of the slopes are transformed to form an extra platform to strengthen the parallel connections. By creating an extra step in the slope, the space for the new function is better defined.	 - By turning the lowered infrastucture into a tunnel, it allows the space to continue on ground level. The space then can be used for other functions. - This can also be used at only a certain spot to form broader bridge-like constructions, like ecoducts.	 - By strengthening the slopes around the infrastructure, these can become steeper and thus need less area of its surrounding. - By extending reinforced construction of the slope inwards, it creates a base for a sound barrier that at the same time it creates the illusion that the landscape continues and hides the infra-structrure from sight.
 - The infrastructure is located in between dikes	 - The slopes on the outsides can be used for making parallel connections by broadening the dike and creating an extra platform. The functions here will still be going along the infrastructure, but are shielded by a part of the dikes.	 - By an overpass over the infrastucture, it allows the space to continue on top of it. The space then can be used for other functions. - This can also be used at only a certain spot to form broader bridge-like constructions, like ecoducts.	 - By heighening the dikes, more of the negative side effects (air pollution and noise) are blocked, making the leftover space around it more likely to be used.
 - The infrastructure is higher than its surroundings (elevated)	 - By lifting up the infrastructure and putting it on columns, the space underneath it becomes like a corridor. This can be used to form the parallel connection.	 - By lifting up the infrastructure and putting it on columns, it allows the space to continue on ground level. The space then can be used for other functions. - The spaces on both sides are better connected to each other and it's easier to form one space.	
	 - The strips next to the infrastructure is lowered into the ground to accentuate the space that will be used for the parallel connec-tion.	 - By creating an underground tunnel, the two sides can be connected without changing the infrastructure. The tunnel is a rather subtle way of making the connection.	
 - The infrastructure is higher than its surroundings (on a land mass)	 - The slopes on the outsides can be used for making parallel connections by broadening the dike and creating an extra platform. The functions here will still be going along the infrastructure as part of the dike	 - By creating a passage in the dike, the two sides can be connected. Here the opening can act as a focus point in the area and as part of a route.	
		 - By lowering the infrastructure and closing off the top, an overpass is created. This allows the space to continue on top of it and can be used for other functions. - Applying this at only a certain spot is not possible under normal circumstances	 - By heighening the dikes, more of the negative side effects (air pollution and noise) are blocked, making the leftover space around it more likely to be used.
 - The infrastructure is located between rows of buildings	 - The row of buildings and the infrastructure can create a zone where transportation of goods and accessibility are prioritized. In the case of a highway, the buildings can be directly connected to it and have the ground floor function as parking garage. - The buildings that can be built here in are companies, offices etc. where the facade facing the infrastructure is closed.	 - When two buildings are on both sides of the infrastructure, these can be connected to each other to form one building. - The buildings that can be built here in are companies, offices etc. where the facade facing the infrastructure is closed.	 - By densifying the buildings next to the highway, these become a sound barrier, making the leftover space around it more likely to be used. - The buildings that can be built here in are companies, offices etc. where the facade facing the infrastructure is closed.