# Beauty in the greenhouse landscape of the Westland

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# Preface

I have strong childhood memories of going to the beach. While I was sitting in the backseat during traffic jams, I looked out of the window and I was overlooking the greenhouses. Without, questioning what I saw, I gazed over the greenhouses until finally, we arrived at the beach.

It was during high school that I learned that not all food is grown on picturesque farms. Often, vegetables come from greenhouses and meat comes from factory farms.

On a field trip during my Masters, we passed by these greenhouses again. It was then, that I discovered not everybody has the same positive association with the greenhouses as I have. Fellow Students made fun of me because of my interest in greenhouses. This inspired me to further research my interest to be able to substantiate my appreciation for the greenhouse landscape. I realised that, the way we look at our productive landscapes and the production itself is something completely different, the image has been romanticized. In my opinion, we should cherish our greenhouse landscapes in respect to their dense, hi-tech and healthy food production. However, many people, such as my fellow students, dislike the Dutch greenhouse landscape; they consider the spatial qualities of greenhouses comparable to polluting big industries.

During a visit to Gardens by the bay in Singapore, I visited the big scale greenhouses in which plants from all over the world were displayed. This big theme park had olive trees 30m high and a rich collection of Baobabs.

Still impressed by this big scale theme park, I flew back to the Netherland, crossing the Westland. All these greenhouses are way more impressive. But the big horticultural machine is very undervalued, in my opinion.

Urbanism & Landscape architecture
After my first year of the Urbanism Masters, I switched to the first year of the Landscape track. Since graduating in two tracks was not an option, I had to choose between two things that I love. Since I had just finished the Landscape track, I decided to change back to Urbanism to complete my thesis according to the structure of the Urbanism track. However, I am glad that this topic and approach of this graduation allowed me to use both my Urbanism and Landscape architecture interests and capacities.

I hope you enjoy reading this thesis, such as I enjoyed writing it

Jan van de Kamp, 4148037

# Summary

The greenhouse landscape is one of the newest landscapes in the Netherlands. Due to the fact that the landscape exists out of build-up greenhouses, the landscape is criticized of its lacking of aesthetics, green and overview/orientation. Despite this critique, the landscape is valued as well for its technological level, its big scale and its rational spatial character but still divers character.

This thesis will focus on reshaping the greenhouse landscape in such a way, that the landscape can be valued easier and by more people. This thesis aims for creating beauty in the Westland by creating a clash between the idyllic romanticism landscapes on the one side and by creating a high-tech futuristic world on the other.

The Thesis will begin with the theoretical chapters. The analysis is split up in an historical analysis and an analysis about how we perceive the greenhouse landscape in the current situation. Three scenarios will be used to generate design ideas. In the last chapter a final design will be presented.

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# Problem field: Need for beautiful production landscapes

The Netherlands holds 9.200 ha of horticultural greenhouses. Although this is a relatively small amount of space, the greenhouse sector produces a high amount of food (in pieces and in value). The Dutch greenhouse sector is one of the densest and most innovative food sectors in the world. The world population is still growing, subsequently the pressure on space is getting higher. To cope with the growing population, densification in our food production is needed.

## A healthier landscape

Another food related problem is obesity. It sounds like a luxury problem but, according to the world health organisation, obesity has tripled since 1975. This organisation states that more people are dying caused by overweight than due to famine. The Stichting Voedingscentrum Nederland (Dutch food centre foundation) has stated the following: "Dutch inhabitants need to eat more vegetables". According to Eurostat, the Dutch are eating the least vegetables and fruit of all EU- countries. With an average of 139g vegetables, Dutch inhabitants do not come close to the advice consumption of vegetables; 200g a day. To raise this consumption towards the average of 200g, Dutch vegetable consumption should raise with 30,5 %. Currently, only 10% of people between 19 and 50 year consume the recommended amount of vegetables each day. Currently 66 % of the vegetables that are consumed in the Netherlands is grown in Dutch greenhouses. Only 20% is grown on open land. The rest(14%) is imported.

## A less CO2 producing landscape

Lowering your meat consumption is an easy and common way people can personally slower their CO2- emissions. According to National Academy of Sciences of the Oxford University, a vegetarian live style leads to 63% less CO2 emissions. If the Dutch inhabitants change their food consumption, the landscape of the Netherlands would look different. We can see that the landscape of the Netherlands is still meat and dairy orientated. The Netherlands knows 119.108.150 are of for cattle and green fodder lands (CBS, 2016). That's 75,2% of the Netherlands productive areas and even 53% of Dutch total land.

## Densification of cattle and/or plants

A lot of innovation in the horticulture has taken place in the Westland. The productivity has raised and energy emissions have been reduced thanks to innovation. Densification in the horticultural sector has not yet led to an ethical debate like densification in the cattle industry. The Pig city design of MVRDV in 2001 has raised a debate about densifying cattle production (MVRDV, 2001). The plan to stack pigs in a tower to raise productivity and to reduce energy and emissions also included improved animal welfare. The design has led to a lot off discussions. This design did not get executed, proposed or redesigned in the last 17 years.

## Production versus appreciation

The paragraphs above, state the importance of and our dependency on the greenhouse horticulture now and in the future. However public support is not based on proper arguments only. It is also emotionally based (elaborated on p.26). Currently, the appreciation of this landscape is still quite low (see next chapter).
If we can create a greenhouse landscape which people appreciate more, people will be emotionally connected to the horticulture sector. By looking at the greenhouses as a form of beauty, an emotional connection can be made easier.

## Design goal

Therefore, the goal of this research is to beautify greenhouses to gain public support and emotional connection.

Meat-landscape

Vegetarian-landscape

Meat-landscape

Vegetarian-landscape

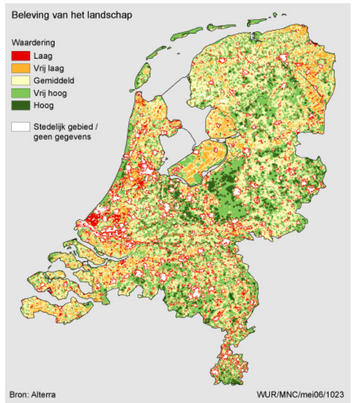
# Appreciation of landscapes

## CLO Rijksoverheid

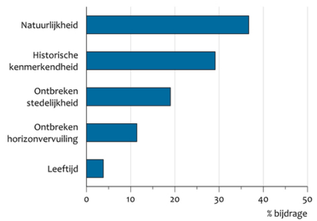
The Compendium voor de Leefomgeving (CLO) generates facts and figures about nature and environment. The organisation is a combination of the Planbureau voor de Leefomgeving (PBL), het Centraal Bureau voor de Statistiek (CBS), Wageningen Universiteit and Researchcentrum (WUR). In one of their researches the CLO has measured the appreciation of Dutch landscapes. This research concludes with five different appearance factors that influence landscape appreciation the most; nature, history, urbanity, no 'horizon pollution' and the age of a landscape. The research is based on a survey of 4,500 Dutch inhabitants. By using GIS-data, the whole surface of the Netherlands is marked with a grade. Within this method, the Westland is among the least valued areas in the Netherlands. The outcome of the research is not detailed. Although this whole landscape is marked with an insufficient grade, people still appreciate the landscape but in a different way.

## A hi-tech landscape

However, the greenhouse landscape can also be valued is a positive way. The functionality and big scale van can seen as impressive.
This positive association is described by Frank van Dam is his column in Geografie. In his column about Fietslandschappen (bike landscapes) he stated that the beauty of the Westland can be seen in a different way. He appreciates the functionality, productivity and innovation of the landscape. However, he also admits there is still a lot ugly in the Westland.




**Bijdrage gebiedskenmerken aan aantrekkelijkheid landschap, 2006**




Ik woon in het zuidwesten van Den Haag. Ik fiets dus regelmatig door het Westland. Het industriele, glazen landschap wordt door velen verguisd. Het Westland is lelijk, zo luidt de algemene opinie. Een woestijn van glas gelardeerd met postmoderne tuinderswoningen, omringd door de hartverscheurende lelijkheid van Westlandse dorpen als Kwintsheul, Poeldijk en Honselersdijk. En dan al die vrachtwagens die de wegen verstoppen en jou als fietser niet zien of je domweg negeren. Het Westland is de stedenbouwkundige hel op aarde. Nou ja, in Nederland dan.

Toch fiets ik daar graag. Sterker nog, ik vind het er prachtig. De enorme kassen, soms vijf tot zes meter hoog, de grote gastanks en waterreservoirs. Het landschap straalt een on-Nederlandse productiviteit uit. Hier wordt niet gezeurd of geklaagd. Hier wordt gewerkt. Hier wordt geproduceerd. Hier wordt geïnnoveerd. En af en toe stuit de fietser op een fraai relict uit een ver verleden: een 19e-eeuwse tuinderswoning, een historische druivenkas, een mooi kronkelend tuinderslaantje omzoomd door knotwilgen of populieren.

Ik geef meteen toe dat er een hoop lelijkheid is in het Westland. Smaakpolitie en welstandscommissie ontbreken. De dorpen (De Lier voorop) zijn, zeker voor een fietser, te mijden oorden. De woonbebouwing in het 'buitengebied' van het Westland is van een Vlaamse ratjetoe-achtige allure. Maar al dat glas, ál dat glas, ik vind het schitterend. Het glas is als de zee, het kleurt mee met de lucht. Van lichtblauw tot donkergrijs. Al zijn de meeste kassen tegenwoordig wit.

De metershoge kassen zijn niet alleen mooi, ze zijn ook handig. Ze beschutten de fietser tegen de wind. Want in dit deel van Nederland kan het stevig waaien. Hoewel ik als trainende fietser de wind inmiddels als vriend beschouw (wind is immers weerstand), is het soms toch prettig even in de beschutting van de kassen te rijden, achter muren van glas. Even tijd om uit te hijgen en een paar slokken uit mijn bidon te nemen.

Frank van Dam

# Problem statement

The greenhouse landscape is valued less than other Dutch landscapes. However, for a growing, healthier and less co2 producing society, greenhouses are of growing importance. We need to beautify greenhouse landscapes in order to get more public support for this sector.



# Research question

How to reshape the Westland in order to experience the beauty of the greenhouse landscape better?

1) When will the Westlands landscape be defined as beautiful?
2) How do we experience the greenhouse landscape at the moment?
3) How can we reshape the Westland to experience the beauty of the Westland better?

# Methodology

Multiple methods were used to answer the research question of this thesis. This chapter explains which methods were used and how they relate to each other.
The methods that have been used are; Investigation problem field (1), concept development in the from of paintings (2), theoretical research (3), historical and current analysis (4) designing scenarios (5), developing a design (6).
Each method is described below. The diagram shows a visualisation of the relation amongst these methods. The numbers in this visualization correspond with the assigned method numbers in the text.

### Investigation of the problem field (1), concept development in the form of paintings (2)

The investigation of the problem field has been used as input to define the concept of my design. The investigation is based on scientific literature, newspaper articles, TED-talks and by discussions with tutors and colleagues. In one of the first meetings, before choosing the mentors, a visual presentation of the concept was required. For this presentation, I photoshopped a tower in an old painting. This image has been the concept of my project ever since. The image has now been improved, and the final visualisation can be found on page 29. Pages 19, 21, 23, 25 and 27 show other spatial versions of this concept that have been developed. These new concepts have helped and inspired me to redefine and specify my problem field and research question.

### Theoretical research (3)

The theoretical research explored motivations for creating these images. These images were still multi interpretable. By writing about it and by strengthening the arguments with theoretical research, my intentions and the concept could be more strongly clarified, identified and communicated. In the chapter The industrial idyllic clash, my intentions and the corresponding arguments and relevance for this design are substantiated.

### Historical and current analysis (4)

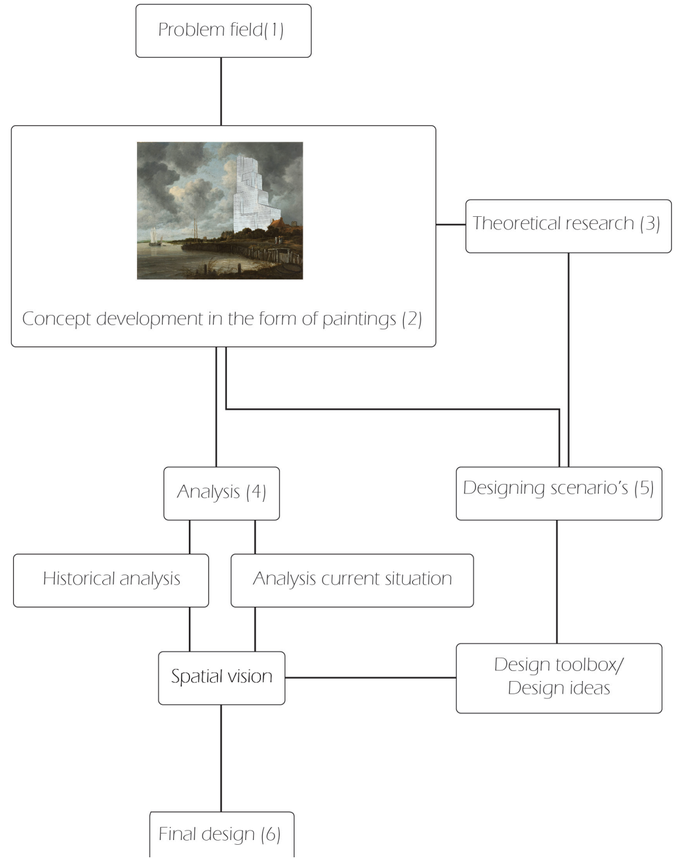
To serve as impute for the scenarios and a final design, an analysis has been made. The analysis is split up in the historical analysis and the analysis of the current situation. The latter mainly focuses on how greenhouses in the Westland are currently perceived. The historical analysis focusses on how this landscape has been created in the past and shows that the main purposes of the changes in the Westland have been the small horticultural entrepreneurs. Both analyses conclude with overview maps, which have been used as main structure of the final design. These analyses also served as input to develop the scenarios and the final design.

### Designing scenarios (5)

To research the spatial possibilities, extreme scenarios have been developed. Designing in extreme scenarios allowed me to explore more extreme design solutions. These options were used as designing elements in the final design.

### Final Design (6)

In the last phase all the elements are combined. The final design is shown from page 121 till page 145. The chapter includes maps, sections and perspectives of the final design.



# The industrial idyllic clash

Defining beauty is a full graduation study in itself. This chapter combines the main theories that are used for my design. It will elaborate on three different theories of beauty and defines beauty or possible beauty for the Westland.

## Beauty theories

The table below shows a quick-scan of multiple beauty theories, which are combined in the table below. The theories describe different definitions of beauty. The theories are evaluated based on two aspects; Usability in the field of urbanism and landscape and how it suits this research. Three theories scored best and seem most suitable for further research; Plato's theory of forms (beauty as a reflection of the ideal form), expressionism (beauty as a communication tool of emotions) and the socio-cultural perspective (beauty as a reflection of the current society).

## Plato's theory of forms (or idealistic Mimesis)

In the theory of forms, Plato states a way to define the objective truth. Since everybody is captured in its own body, a 100% objective view is not possible. The reason we still understand each other is thanks to the fact that basic concepts and ideas are embedded in our minds already. According to Plato, all what we feel in this world reflects the (non-existent) ideal world, in our minds. This ideal world is embedded in the mind of people, even before we were born already. As a baby, people learn to recognise forms in the sensible world from the forms in the ideal world. In this theory the beauty of an object is defined by how close the object is to the ideal object. The theory of forms defines beauty as the nearness of an objects to its ideal form (Ross, 1951).

## The beauty of the Westland with Plato's point of view

If we want to apply this theory on the Westland, we have to define the ideal form of the Westland landscape before we can value the beauty of the Westlands landscape itself. Is the ideal form of the Westland with or without greenhouses? If the ideal landscape is without greenhouses, what kind of landscape would it be then? (In the landscape analysis chapter, the historical phases of the landscape are explained). If the ideal form of the Westland includes greenhouses, how can we define the ideal form of the greenhouse landscapes.
Not only defining a landscape type is complex, since the greenhouse landscape is relatively new, there is only little literature about it. Bobbink, is one of the few who defined the greenhouse landscape as a landscape type (Bobbink, 2009). A clear definition lacks, but she stated that the type acknowledges its origin in the famers culture in the Westland

| Name movement: | In philosophy of: | Fits in the field of urbanism and landscape architecture: | Fits in this thesis: |
|---|---|---|---|
| idealistic Mimesis | Plato | The ideal landscape should be defined first and translated into a design later | + |
| Naturalistic Mimesis | Aristotle | Urban design and landscape architecture positions their selves in the sensible world. The field does not create representations of the real world. | - |
| Aesthetic expressivism | Benedetto Corco | A feeling or emotion should be created. The design itself should represent this emotion and feeling best. | + |
| Formalism | Emmanuel Kant, Clive Bell | Every design should be clearly readable. | - * |
| New Criticism | John Crowe Ransom | This theory passes the role of the designer. A landscape can be valued anyhow. The intentions of the design does not matter. | - |
| Art-historical perspective | Hegel | Valuing a design as a style icon is not possible, since we are still in this time. | - |
| Socio-cultural perspective | inspired on Karl Marx | A social debate should be defined and a position should be taken. Later the design should communicate this. | + |

*This theory does not value the beauty of the design it selves. Only the level of detailing.

# The industrial idyllic clash

itself. "Due to rapid changes in technology, the greenhouses landscape is constantly changing. Changes occur in such a speed that they can be captured in one generation.". Although this reference defines the changes in the landscape, the reference fails to underpin a clear and fixed definition of the greenhouse landscape.

The ideal form of the greenhouse landscape can be viewed in multiple ways. The text below describes some approaches of how we can look at the ideal form of a greenhouse landscape.

## The ideal greenhouse landscape as an optimised machine

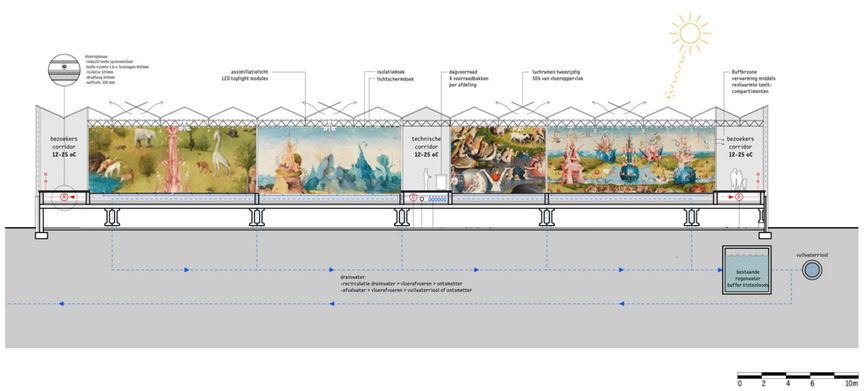
If we define an ideal greenhouse as a greenhouse which produces as much horticultural products as possible, the entire landscape can be considered as a production machine. An ideal greenhouse landscape could be a landscape that produces as many horticultural products as possible. In this view the big-scale greenhouses at Medemblik (see p. 51) are more ideal than the current Westland patterns. A possible approach could be to demolish all the greenhouses and put a new big scale grid over it.

## The ideal greenhouse landscape as constant changing machine

We can state that the ideal greenhouse landscape is a rapidly changing landscape driven by technology. In the ideal greenhouse landscape, the time factor is embedded. Within this view, we see the greenhouse landscape as a producing machine; constantly in change and driven by technology. The aim for innovation is high and the site is used as a test site for new ways of mobility, energy and productivity.

## The ideal greenhouse landscape as a protected paradise.

The way greenhouses create the ideal climate for the plants can be viewed as making paradise under glass. In the ideal greenhouse landscape, the weather



# The industrial idyllic clash

and climate are always comfortable. The ideal greenhouse landscape is inside the greenhouses, creating a safe and controlled comfortable place. It is separated from the outside world which is slowly getting worse because of air pollution.

## Aesthetic expressivism

The aesthetic expressivism theory defines art as the key factor we communicate in. In Breviario di estetica (The Essence of Aesthetics), Benedetto Croce states there is no such thing as an objective truth because we all experience things differently. The exact understanding of each other with all its emotions and intentions cannot be communicated in any form. Art (in all forms) is essential as a way we try to communicate our emotions to each other. By creating and experiencing art, we are able to understand each other's emotions best.

Corresponding to this theory, I photoshopped paintings just how I liked them. The reasons and underlying principles of why I made this, came later. After creating this montages, the work is strengthened with theories. This theory considers well positioned theories to be a form of art, as well. By combining the images and theories, I try to motivate the preferred perspective.

## The paintings

As an experiment, I created a series of photoshopped paintings. I chose multiple old Dutch landscape paintings. Some famous painters such as Andreas Schelfhout and Jacob van Ruisdael and some fewer famous painters such as Julius Jacobus van de Sande Bakhuyzen and Paul Joseph Constantin Gabriël. Most of the paintings are painted in the Romanticism movement which is known for glorifying wild nature. Andreas Schelfhout (whom is considered the most famous Dutch Romanticist) was influenced by the Haagsche school movement (1860-1900). Storm on the sea by Scheveningen is a painting Andreas Schelfhout which has inspired the whole Haagsche school painting movement.

I photoshopped towers in paintings in which the greenhouses will be situated. Instead of spread out greenhouses, the greenhouses extend vertically. The futuristic greenhouse high-rise towers are situated in the idyllic landscapes painted in the romanticism style. By analysing these paintings, I discovered that the main goal of my creation would be the clash between futuristic beauty and this romanticism landscape beauty.

## Futuristic beauty

In the book: Architecture in Europe since 1968, Alexander Toni and Liane Lefaivre describe neo-rigorism as one of the tendencies in Europe's architecture since 1968. Centre Georges Pompidou (constructed in 1972-1977) is a significant project in this post 1968 neo-rigorism tendency. It strips a building down to its core function. According to Alexander Toni and Liane Lefaivre the success of centre Georges Pompidou was mostly thanks to two elements. Firstly, all functional and structural elements are put in discrete articulated channels or pipes. Secondly, all these channels and pipes are positioned on highly visible locations, either on the façade of the building or visible under the ceiling.
This desire for exposing functionality was not for aesthetic reasons only. The neo-rigid architecture claims honesty. Nothing should be hidden for the public. Moreover, Alexander Toni and Liane Lefaivre claim that descriptive architecture is also prescriptive. The neo-rigid architecture shows precisely how to construct the future world with all its exposed technology. (A. Toni and L, Lefaivre, 1992)

# The industrial idyllic clash

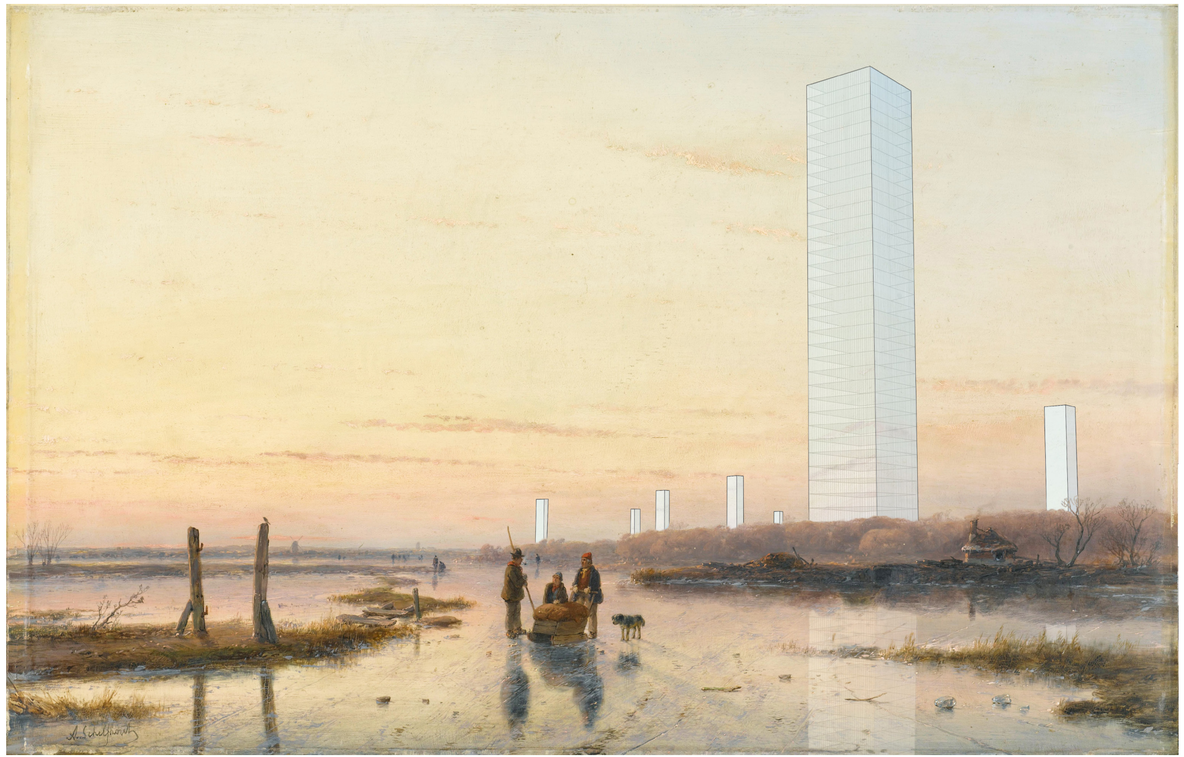
Another approach of beauty is created in the landschaftsparks in the Rhine-Ruhr-area in Germany. The design of landschaftspark Duisburg-Nord by Latz + Partner, is based on the research of Berend and Hilla Becher in the 1970ties already. In their books Anonymous Sculptures, Typologies and industrial landscapes, Berend and Hilla Becher show the beauty of the old industrial factories. The reappreciation of industrial sites was is a time in which European factories slowly lost their functions. With their photographs, Berend and Hilla Becher showed the hidden beauty of the big factories and machines, therefore instead of looking at the machines as pure functional objects they were also seen in its beauty.
In the design of Latz + Partner of landschaftspark Duisburg-Nord an old factory side is reshape into a park with recreational and cultural functions. In the design the abandoned factory is positioned as a ruin in which, you can climb and walk around. The human scale is reintegrated in the design by creating paths, creating openings, constructing walkways and by planting new green underneath and around the factory.
My personal fascination about this park is the relation between the factories and the surrounded urban structures. The urbanisation in the area has taken place thanks to these big factories. The factories had a central position in the daily life in the industrial age. By reopening the factories with a more recreational and cultural function, the factories got their old position as a centres back.

## Beauty in Romanticism

In the late 18th century landscape painters (which were seen as a specific and small branch) were growingly seen as artists too. The two biggest influences, according to Gombrich, in the Romanticism movement were Turner and Constable. Gombrich described the paintings of Turner as one of the boldest in the Romanticism movement. Turners painting; Steamboat in the snowstorm show this best. The emotional feeling which is communicated in the painting creates the beauty of it. The spectator can reconstruct the feeling as to be present at this snow storm. The strong wind and cold temperature are almost sensible by only looking at this painting. The nature creates emotions for human beings, and we feel small and powerless in this painting style. It is remarkable that it is not clearly visible which specific boat has been painted and this is irrelevant. The storm and its emotions are more important than which specific boat has been represented.

The paintings of John Constable show the other side of the romanticism movement. In Constable's paintings, the emotions are not fixed in the painting style itself, like in the paintings of Turner. In the paintings of Constable, the spectator himself should create an emotion by looking at the painting, instead of adopting the emotion of the painter. The painting style of Constable is more precise than Turners style. The inspiration of Constables paintings was found out in nature. His sketches, (which were usually more dramatic than his paintings) were made outside. These sketches were used to compose his paintings in his atelier (E.H. Gombrich, p.490-497).

According to Hans Hartog de Jager, the Dutch Romanticism movement is internationally criticised for being less impressive and therefore less important. He blames the Dutch landscape itself. The Netherlands never had such dramatic landscapes with high mountain and old trees. He claims that most of the Dutch Romanticism painters are inspired by the work of Jacob van Ruisdael (1628-1682). Jacob van Ruisdael holds a rich collection of landscape and sea view paintings. His precise style is still loved and could be seen as one of the first important landscape painters in the Netherlands. The romantic painter



# The industrial idyllic clash

Andreas Schelfhout (one and a half century later) never pursued realism. In his famous collection of sights on Haarlem a rougher painting style is used. Most of these paintings were painted from such a high perspective that they must have been painted from imagination. H. Hartog de Jager claims that we tend to forget the romantic movement in the Netherlands. He claims that the clash between this search for pure nature and the Dutch landscapes was too big. He claims the English and German painters got their inspiration from nature, while the Dutch romanticism got their inspiration from the art movement itself. He claims that it looks like romantics painters choose Romanics elements randomly instead of working from a romantic point of view from the beginning on, simply because the wild nature was too far from the rational and man-created landscapes (Den Hartog Jager, 2011).

## Socio-cultural perspective.

In the socio-cultural perspective, beauty is a reflection of the time it was made in. The design or piece of art is beautiful because it reflects the historical or social paradigm it was made in. A design is beautiful because it reflects the current socio-cultural perspective. In this we should define the current or futures socio-cultural discourses and take a position in this.

Multiple discourses can be taken from the problem statement. A clear position in the relation between food productivity and food consumption is the position of L. Fresco. In her book Hamburgers in het Paradijs, she explains how food productivity and food consumption have been disconnected from each other. The disconnection between consumption and production can be interpreted in three different ways: spatial, cognitive and emotional.

## Spatial disconnection

We are spatially disconnected from our food chain. Food is transported for hundreds of kilometres to its consumers. The Dutch supermarkets are full with products that are (partly) produced in different counties. The packaging and advertisement, gives the consumer an idea about how and where the food is produced.

## Cognitive disconnection

Nobody knows the origin of our food or the exact way it is produced. The lack of knowledge is what I call the cognitive disconnection with our food. The EU considers this to be a problem. To protect its inhabitants and to prevent them from being misled, the EU has introduced strict rules about packaging, to define the thin line between advertising and deceiving. An example is the mandatory notion of its country of origin ((EG) nr. 178/2002). Another rule is that pictures are only allowed for advertisements when it is the food itself. Packages should state the percentages of its product.

## Emotional disconnection

Although the cognitive disconnection seems innocent, Louise Fresco (President of the Executive Board of Wageningen University and Research Centre) addresses the emotional disconnection as a big problem. In her TedTalk: we need to feed the whole world, she states that we (western countries) tend to see technical developments in the food industry as a negative thing. She addresses how people in western countries are longing for authenticity. This is as a problem because "only due to technological development, we are able to feed the world's current population." (Fresco, 2009). The way we emotionally "ban" technology out of our food patterns, stagnates innovation and therefore reduces food productivity, which is needed for a growing world population.

# The industrial idyllic clash

People judge each other on their purchasing behaviour. Branding is flourishing and packaging addresses the choice of being CO2-neurtal and social righteous. It is not the knowledge but the love in food that people are longing for. People are searching for food which is "fair", "real" or "good for the world". Climate change and unrighteous working conditions are problems consumers desire to dissociate themselves with. A logical tendency is to long for the way our food was produced before climate change or unrighteous working conditions were accurate problems. Design can contribute to improving issues in this Emotional disconnection. By designing a more visible horticultural production process, people can associate themselves with their food again.

The Westland takes a big role in the European food production in the port of Rotterdam and takes a big role in the European food transportation. This area should be taken into account in this discussion. If there is a place where we could reconnect spatially, cognitively and emotionally with our new hi-tech food chain, it should be the Dutch Greenports and the harbour of Rotterdam.

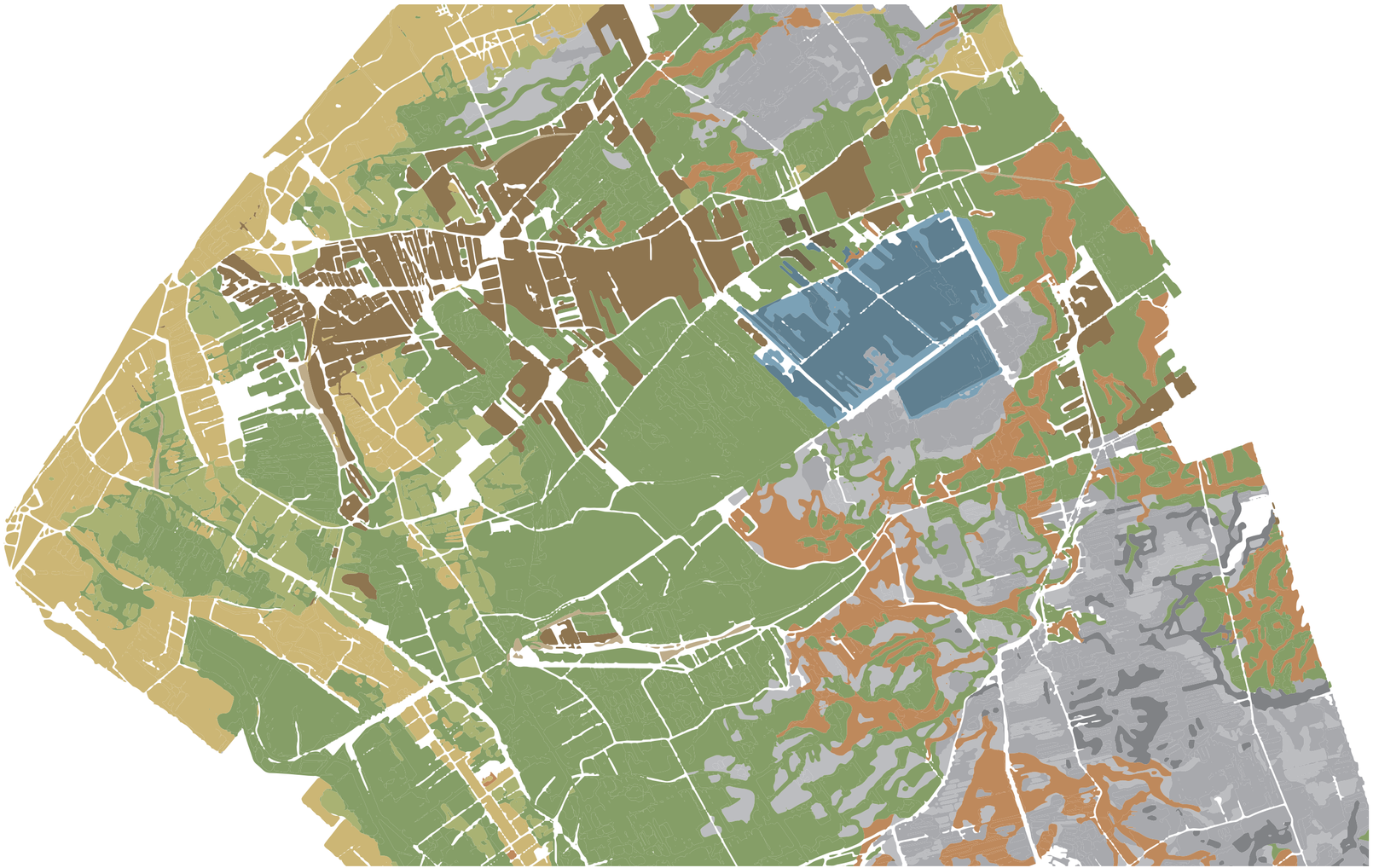
## Conclusion

In the table below the two clashing worlds, are described. The paintings on the right pages show the relation and the emotional image it should create. Concludingly, the position of the Westland is stated in one paragraph:

## Position

In my vision the Westland should be valued in two different ways; the Westland as a productional machine and the Westland as a natural fertile landscape. These two ways to appreciate the landscape should be attached to each other. The productional side of the Westland should be even more overwhelming than it is now. Heighten up greenhouses or create point to oversee the landscape could help to reach this goal. Besides, should the Westland still be seen as a landscape and not as a city or industrial area only. Due to the fertility of the landscape the horticultural sector could literally and figuratively flourish. The overwhelming capacity of this climate should be glorified too.

# Analysis I
## - Westlands historical landscapes -



# Soil Westland

1:50.000

The horticultural success of the Westland is due to the climatological aspects of the area. The area has a high amount of sun hours, the wind from sea causes fewer cold winters. The area of the Westland is above sea level, so the water level is lower than in the rest of Holland. And the whole Netherlands knows enough rain.

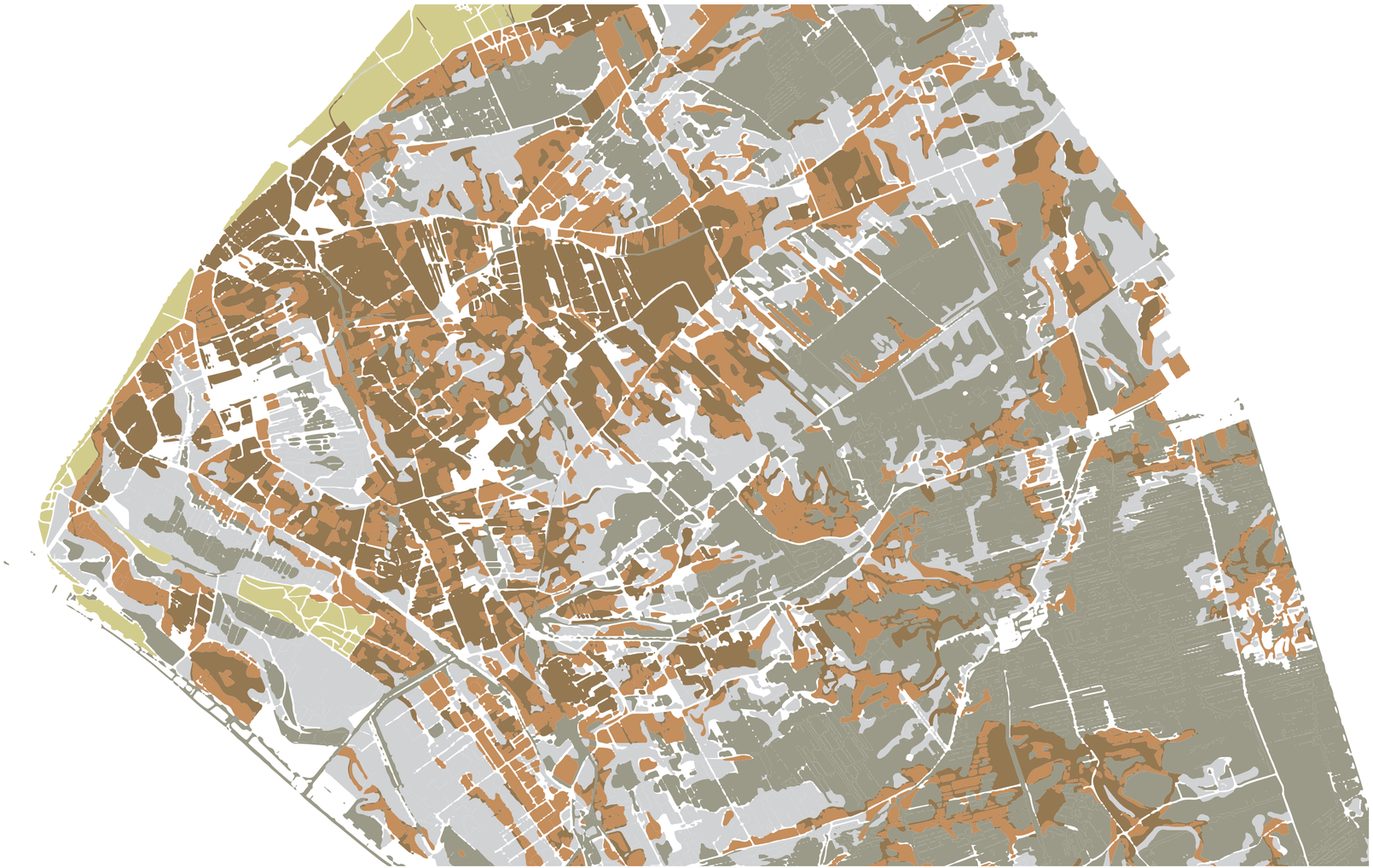
The soil
One of the most important factors of the horticultural success in the Westland is the fertile soil. The fertile river clay, from the Maas, which used to come by, created a fertile basement for horticulture.

Sand from the dunes was shipped to the area. Originally to heighten up the area (for flooding defence) but later for horticultural purposes too. Due to the nearby different soils, gardeners could mix their ideal a fertile ground over the centuries.

These maps are made based on the research of W.J. van Liere (1948).

Legend:

- mixed grounds, mostly clay with sand of the dunes.
- Dunes. Sandy grounds, drifted from the sea.
- moist sand dunes soils, containing some clay (Dutch: Geestgronden)
- water-logged, compact clay soils.
- Old sea clay (lake bed polder)
- peat soils
- Black creek-filling soils



# Horticulture soil

1:50.000

In the same research of W.J. van Liere, he researchs the suitability for greenhouse horticulture in the Westland area. The map besides shows which areas were suitable for greenhouse horticulture and which not. For a few decades the soil underheat the greenhouses is not used anymore.

Legend:

Dunes or sandy grounds

Extremely suitable for greenhouse horticulture. These areas have been adapted for horticultural purposes already.

suitable for greenhouse horticulture.

not suitable for greenhouse horticulture. However, if adapted it could be made suitable for horticulture.

no suitable for greenhouse horticulture at all (in 1948).

225 BC.
1:50.000
the tidal creek landscape in the area of the Westland

Polder structure
1:50 000
The map below shows the polder structure around 1920 projected on the mainland coast.

Tidal landscape: Due to the tides and summer/winter levels of the river, the Westland used to flood regularly. Sea clays, dune sand and river sand particles were dropped off in the creeks of the Gantel and the Lier.

First small-scale dikes (Poeldijk, Mariendijk, Hoogweg) were constructed to protected the lands which are flooded once in a while (These lands contained more peat and less sand). In these peat lands ditches were dig and the peat lands started to lower slowly

in 1238 the Maasdijk was constructed. The Gantel and de Lier were diked off. These tidal creeks became boezem rivers. The Westland was, from now on, drained via Delft and Schiedam/ Rotterdam (The East of the Westland contained peat which have been shrank )

Sea clay polders, were constructed south from the Maasdijk.

The Nieuwe Waterweg was dig in 1872 to connect Rotterdam to the North Sea. A part of the Westland was cut off. (and later being transformed into the Maasvlakte)

The fertile ground of the Westland, are situated at the boarder of the dunes, and the old Gantel and de Lier creeks.

# Fertile grounds

1:200.000

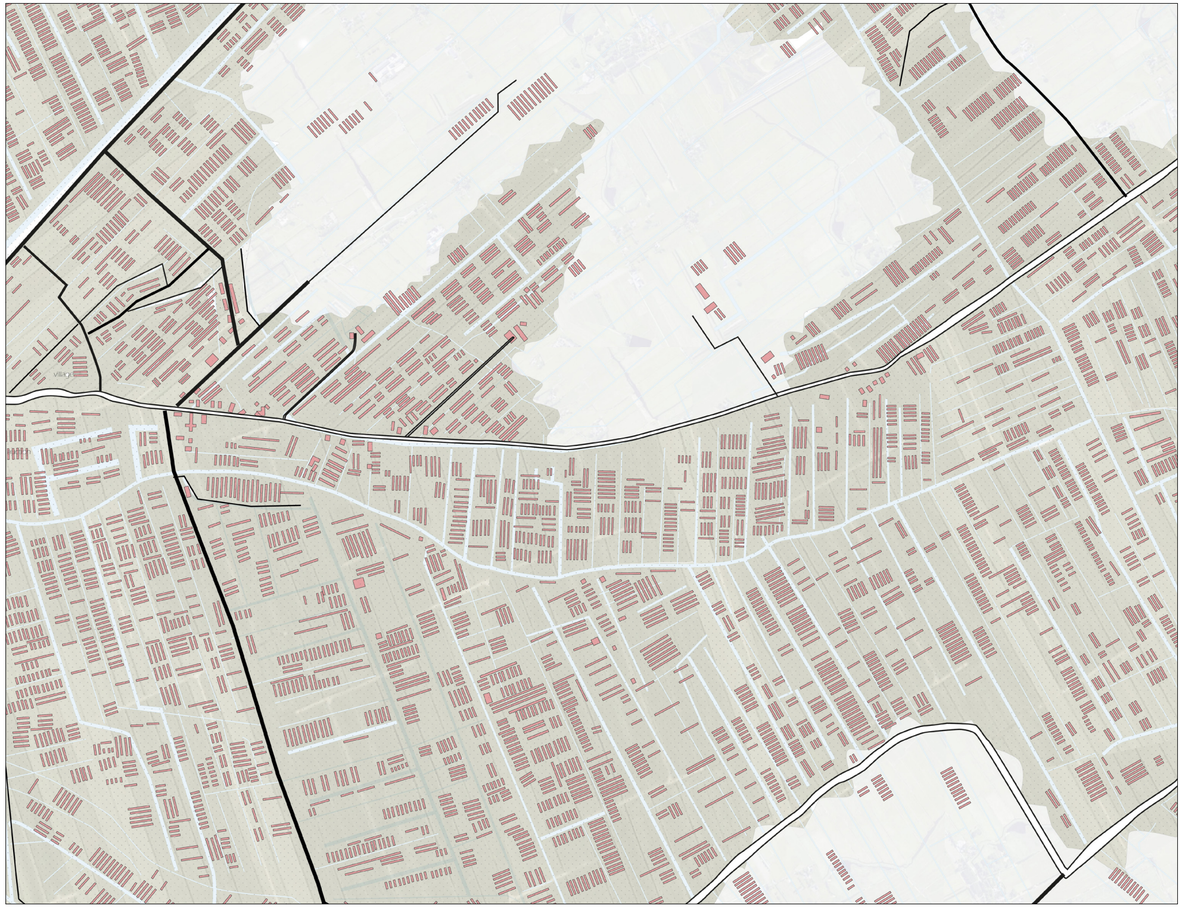
The landscape of the Westland knows a long history. The most important steps of the origin of the Westland are show in the maps beside.

The last map shows the soils which historically have been suitable for horticulture. grey is horticultural fertile grounds without greenhouses and red is fertile ground with greenhouses on top of it.

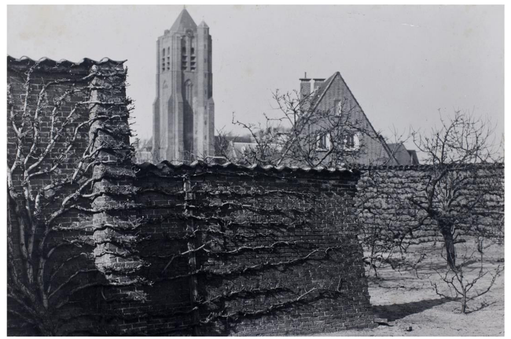
Most of the current greenhouses are built on the most fertile ground. However, since the greenhouses are detached from its surrounding soil, the greenhouses have been constructed on less or unfertile ground too.

The series of maps is based on maps of the Atlas van het Westlands of IJsselstijn, M., Mil, Y.(2016). The last map is based on the research of W.J. van Liere (1948) (Westland area) and the research of G. A. Vos and K. Wagenaar (fieldwork 1970).

Horticultural patterns around 1930
1:50.000
In the 1860ties a steam ferry to London opened. A lot of people could be reached in a short time and the area of the Westland was orientated on wine production for export reason. The success of this sector was until 1929. Due to the economic crisis, the Pound dropped and exporting wine was not affordable anymore.
Monster
Terheiden
Wateringen
Gravenzande
's Gravenzande
Naaldwijk
Hoek van Holland
De Lier
Schipluiden
DELFT
Pijnacker
Berkel
Nootdorp
Hillegersberg



map near Poeldijk around1928



# Dutch horticultural patterns over time

1:10.000

The intensive grapes cultivation of the 1860ties till 1929 created a pattern drawn aside. The plot of the gardeners is rectangular. The plots where connected with the small side towards a dike or road. On this side, a houses and sheds were situated. The plot was connected by water to the auction. The boxes full of grapes where shipped though these by boat.

small walls were used for the stability of the grape plants. The wall also functioned as a protection against wind and functioned as a warmth buffer during the colder nights. The constructions slowly evolved into greenhouses.

Legend:

Roads

(Old) Dikes

Fertile ground

Constructions (walls for grape production and buidlings)

# Current
# Horticultural patterns

1:50.000

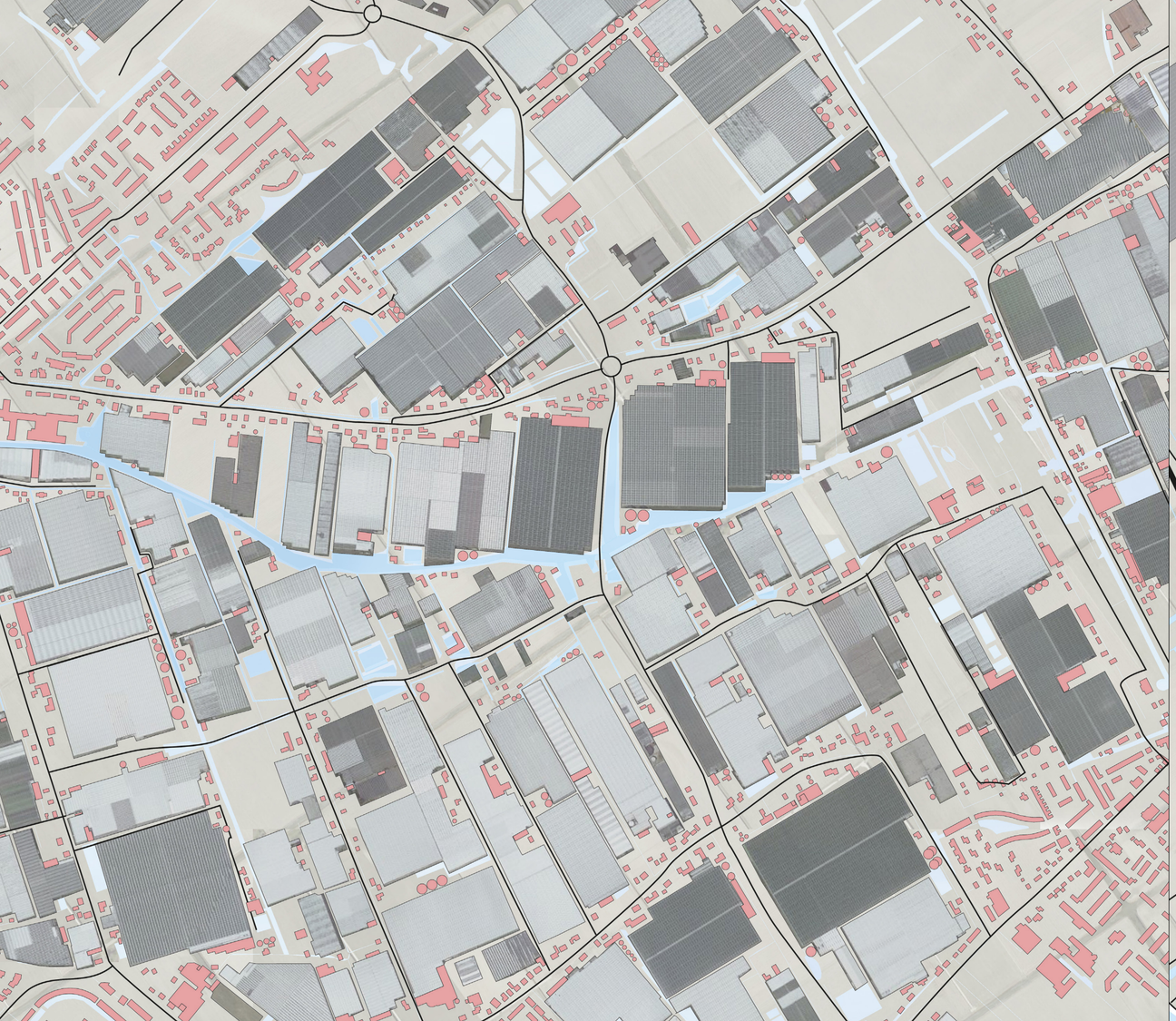
During and after WOII the Westland was focussing on vegetable production mainly. The greenhouses slowly got bigger and since the 90ties of last century many greenhouses were placed outside the Westland too.

# Greenhouse landscape, 2018

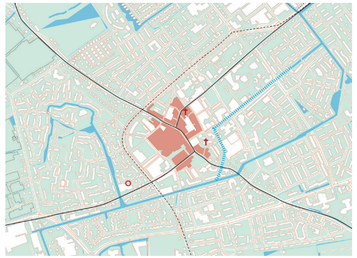
1:10.000

For efficiency reasons the greenhouses have become bigger. Plots in the wetlands have been merge and the plots have become wider. However, the old houses along the dikes and roads were not destroyed. Due to this process the Westland knows a lot of Ribbon villa/farm villages. The villa's does not have backyards, but green is planted between the villas.

The big scale greenhouses shown underneath are the newest greenhouses in the Wieringermeer polder, close to the auction of Medemblik. Both drawings are made on the same scale to show the differences in size.



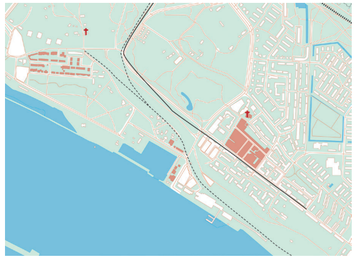
-Naaldwijk



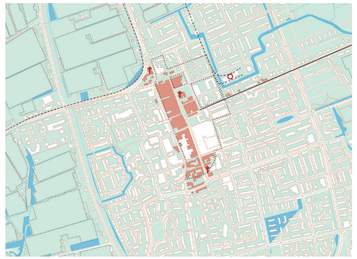
-De Lier

-Honselersdijk

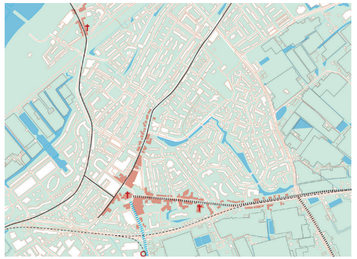
-Hoek van Holland



-'s-Gravenzande



-Monster

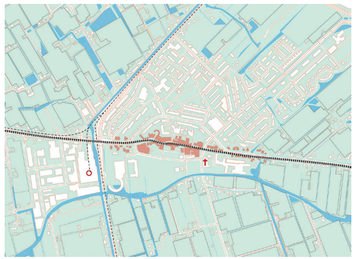


-Maasdijk

-Heenweg

-Wateringen

-Poeldijk



-Westerlee

-Kwinstheul

# Landscape analysis of Westlands villages

1:1.000

In the analysis beside, 12 village in the Westland are drawn. In the analysis old train track, dike, churches, important road and the historical auctions are drawn. The types of villages which can be distinguished are:

The dike villages; Poeldijk, Honselersdijk, Heenweg, Maasdijk, Wateringen, Westerlee and Kwinstheul

The villages on higher sand: Naaldwijk, 's-Gravenzande and Monster.

Hoek van Holland knows its origin at the 1870ties when the Nieuwe Waterweg was dig.

Legend:

- Old village centres
- Current buildings
- Current greenhouses
- (Old) Dikes
- (Old) Roads
- Water
- Old canals
- Church
- Old auction building
- Old train track
- Old estates/fortifications

# Conclusion
# Historical analysis

1:50.000

The landscape of the Westland is, just like the rest of Holland, adapted for agricultural and draining reasons.

The Westland it selves divers from the rest of Holland because it contains a sandier soil (and therefore did not shrunk that much).

The map besides divides the Westland area into 3 typologies. The origin of the Westland Horticulture. This soil is adapted extremely tough time for horticultural reason.
The sandy and Geest soils: These soils are suitable for horticulture but are adapted by human in time.

Finally, the non-horticultural-suitable grounds. These areas have been transformed to greenhouses in the time the greenhouses did not need the soil underneath anymore. These soils contain too much peat and/or to fine sea clay

Legend:

- Old dikes
- Old roads
- Old villages
- Water
- Fertile ground
- Sandy ground
- Peat (unfertile)

# Analysis II
## - Westlands greenhouse landscape -

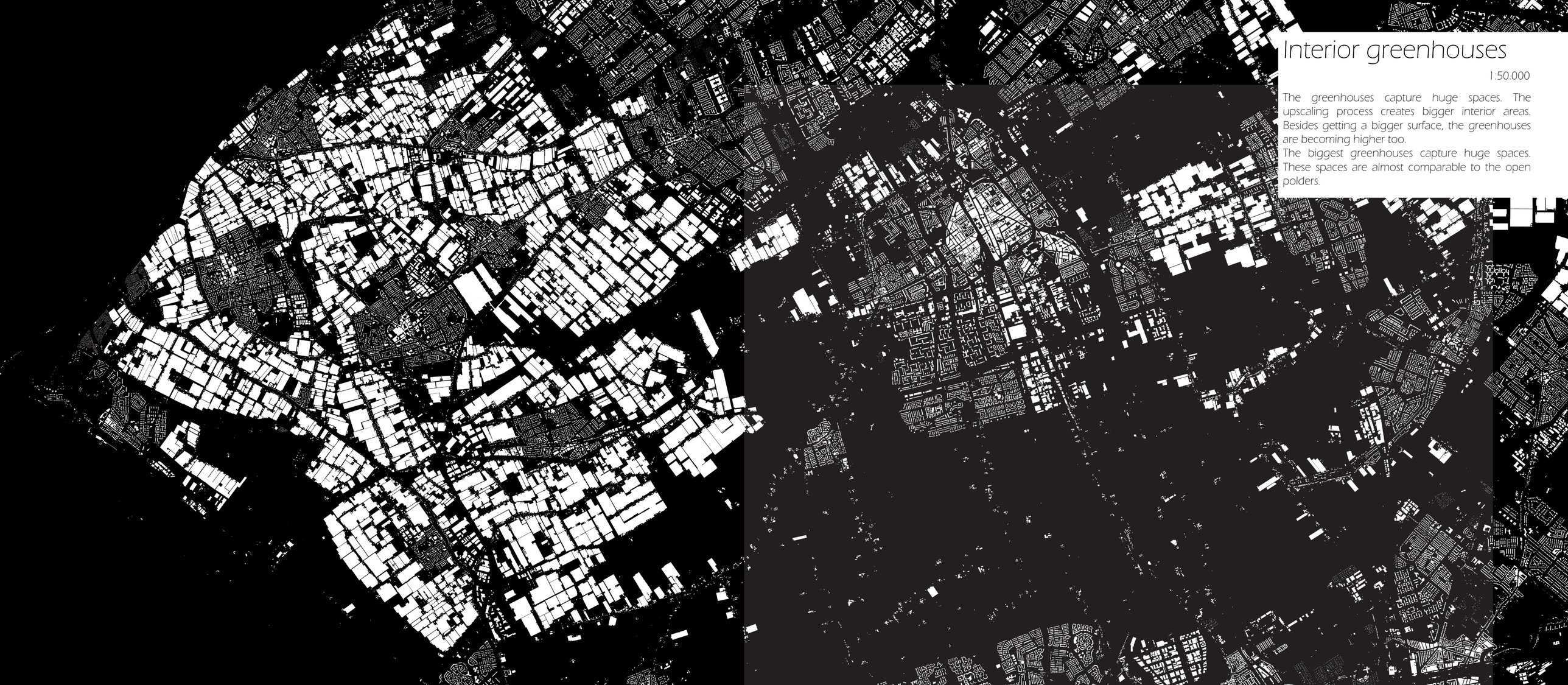
# A build-up landscape

1:50.000

In the map beside all the buildings are drawn. In the Westland, greenhouses have almost filled every open space.

In the Westland the open spaces can be find in the villages. This is the opposite to the common Dutch pattern. Mostly, the villages are dense and the landscape around is open.

The sea is the most open space we can experience in the Netherlands.

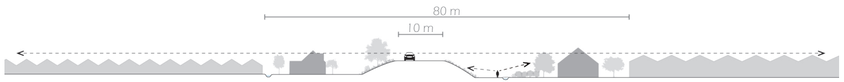


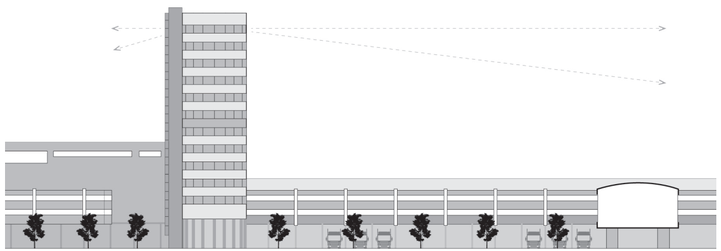
# Interior greenhouses

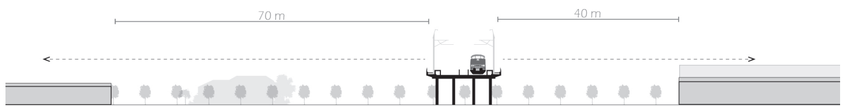
1:50.000

The greenhouses capture huge spaces. The upscaling process creates bigger interior areas. Besides getting a bigger surface, the greenhouses are becoming higher too.
The biggest greenhouses capture huge spaces. These spaces are almost comparable to the open polders.

View over the greenhouses

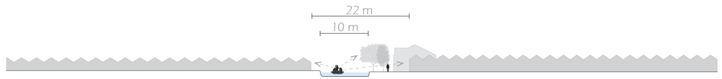


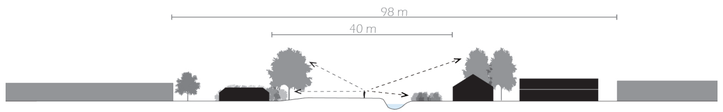





View in between the greenhouses




No view on the greenhouses




# Ways to experience greenhouses

1:1.000

In the Westland greenhouses can be experienced in different ways. The section besides, shows an overview of the most common ways, greenhouses can be experienced.

In the next pages the locations of these sections are mapped.

# Above greenhouses

1:50.000 ; 1:1.000

We can distinguish four different ways/places to view the greenhouse landscape from a higher place.

Orange: From the elevated dunes, an open view over the greenhouses is possible. By walking or biking allonge the dunes, the greenhouse landscape can be seen.

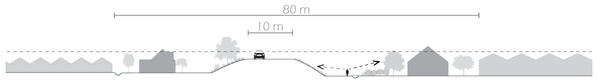
Red: The highest building in the Westland is the auction of Naaldwijk. The tower of the auction houses offices and overlooks the landscape. From other high buildings (like churches) an overview is possible too.

Blue: The Maasdijk is an old, 5 metres high dike. The dike is relatively high and overlooks the build-up greenhouses. Driving along the dike reminds on driving on a polder dike. The view over the greenhouses, is open and wide.

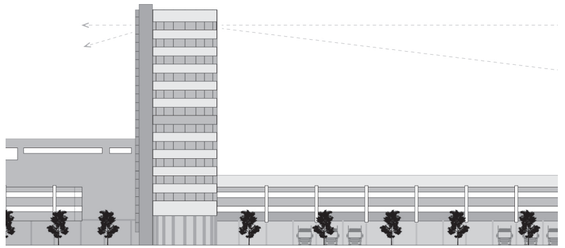
Legend:

- Greenhouses visible from a dike
- Greenhouses visible from a building
- Greenhouses visible from the dunes

Slaperdijk, Monster, Westland




Maasdijk, 's-Gravenzande, Westland



Middel Broekweg, Naaldwijk, Westland

# Above greenhouses

1:50.000 ; 1:1.000

Green: The Hogesnelheidslijn Schiphol – Rotterdam is part of the international train connection Amsterdam-Paris. The train track crosses the greenhouses of Bleiswijk. The HSL is elevated with 6,5 metres and crosses the greenhouses like a bridge over the water.

Legend:

Greenhouses visible from the train

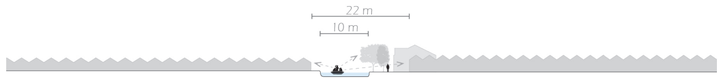
# Between greenhouses

1:50.000 ; 1:1.000

The waterways which have been used for transporting flowers, fruits and vegetables to the auctions, are out of use since the rise of motorised transport. Water recreation is possible. The waterways in the Westland are the tightest spaces between the greenhouses.

Legend:

Greenhouses visible from water




Gantel, Poeldijk, Westland

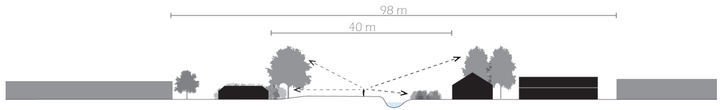
# Hidden greenhouses

1:50.000 ; 1:1.000

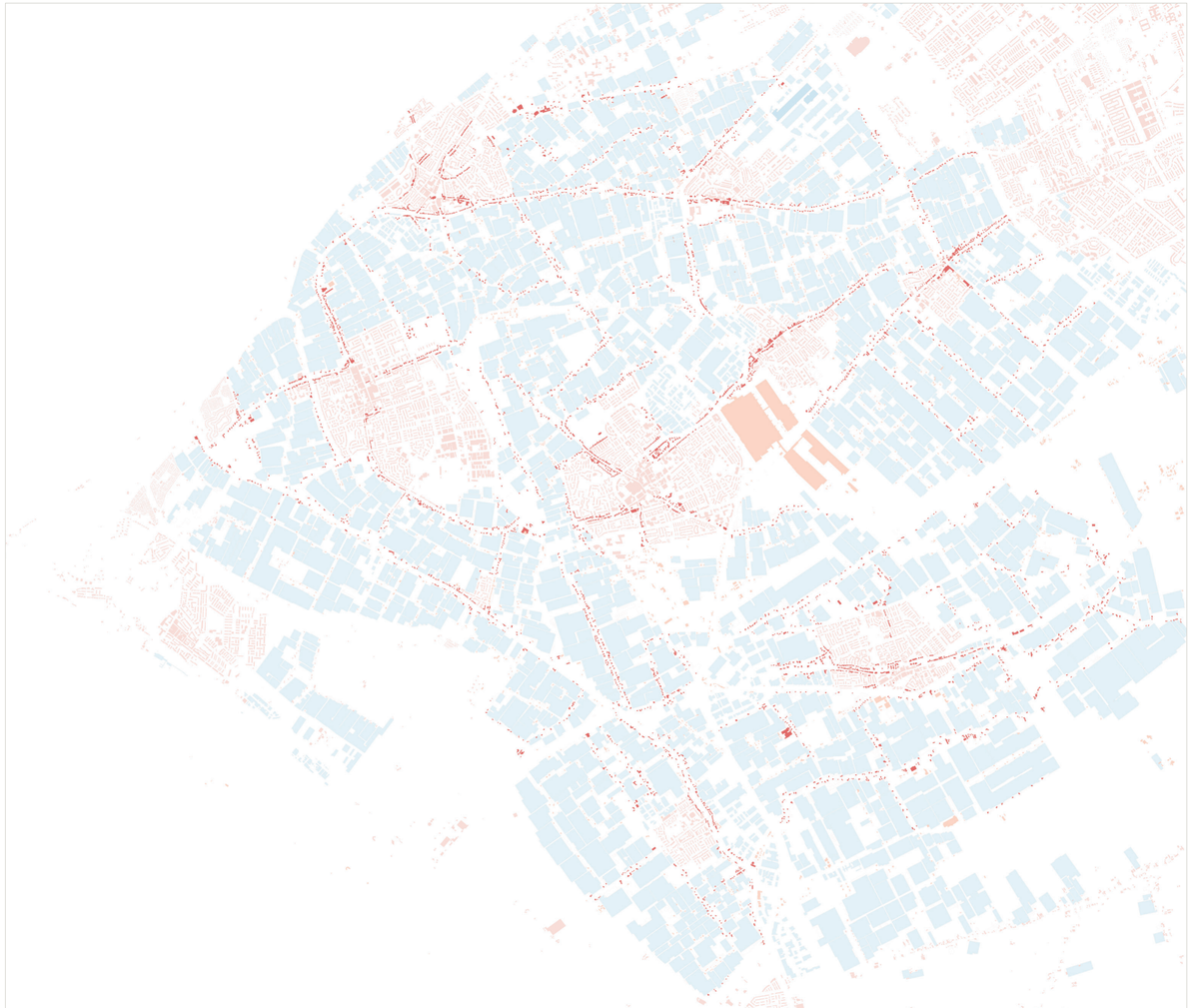
In a lot of roads, the view to the greenhouses is blocked. A stroke of villas and gardens are blocking the view. The appearance of greenhouses is not visible.

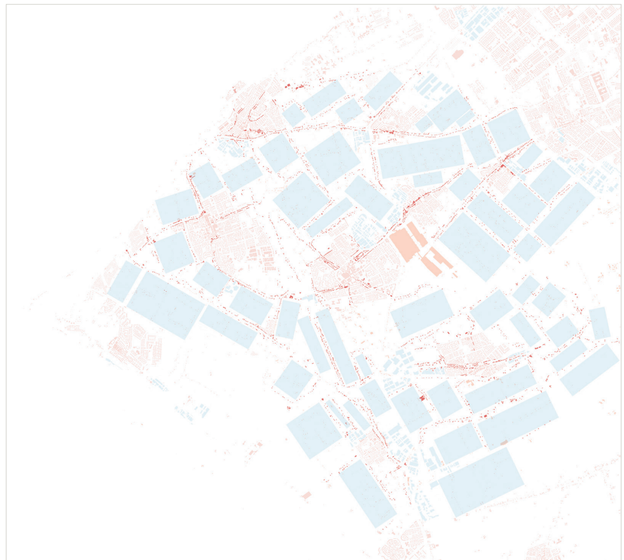
Legend:

Greenhouses hidden by green




Middel Broekweg, Honselersdijk, Westland





# Ribbon villages

1:50.000 ; 1:100.000

Ribbon villages are connecting most of the villages in the Westland with each other. The ribbons know a mix of pre- and post-war architecture and farms or villas. The ribbons follow old dikes and roads.

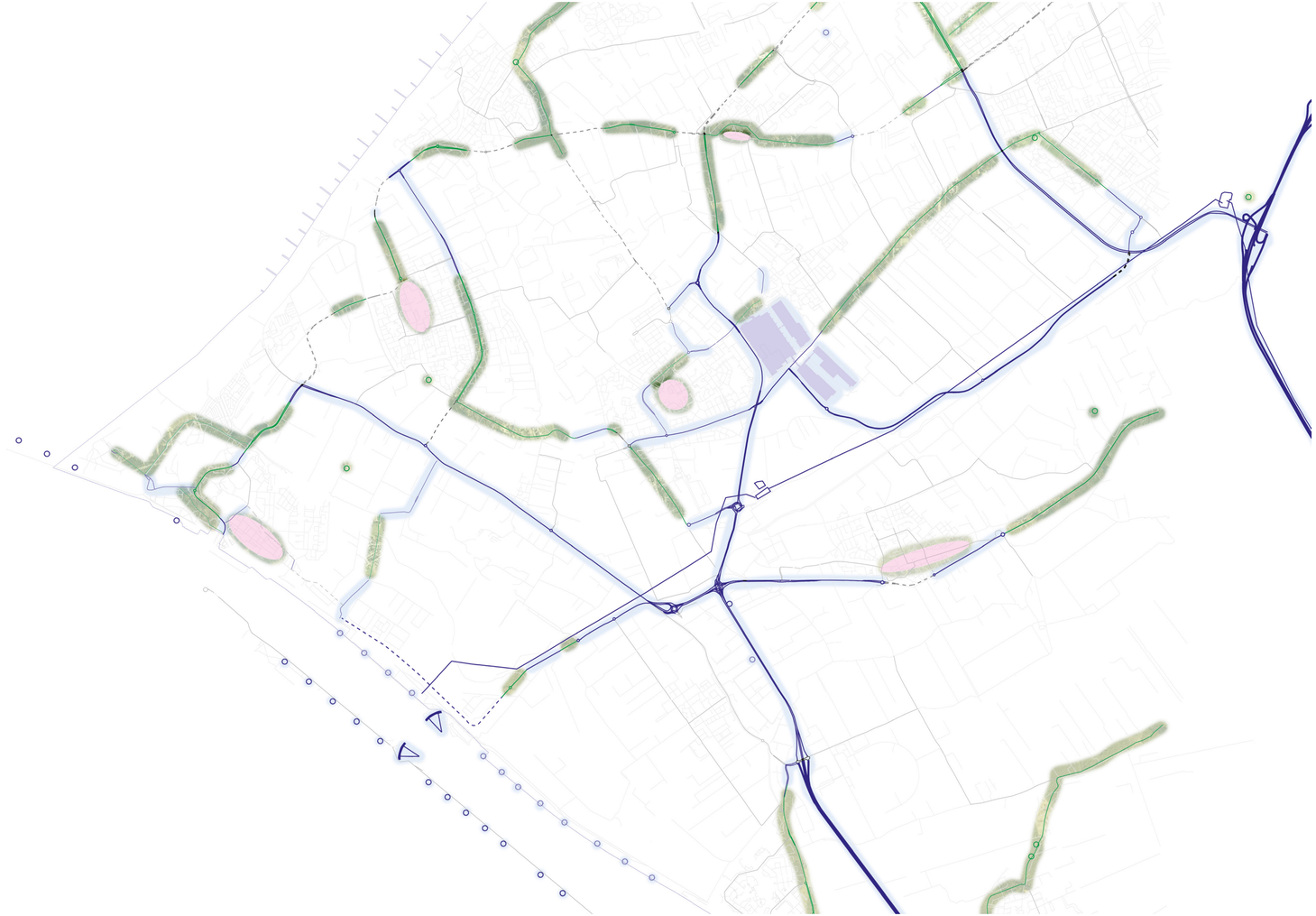
The map on the right shows the Ribbon villages which are protected by the municipality. All other villas are positioned on spaces zoned as greenhouse horticulture use. Therefore, the municipality cooperates on removing these villas.

Due to this, small roads between the greenhouses disappear slowly. When two plots merged, the villas and roads in between are demolished. Roads along the greenhouses disappear slowly.

Legend:

Ribbon villages

Greenhouses



# Conclusion

1:50.000

The map besides shows the visibility of greenhouses along the road. the map also shows the old and modern windmills (the circles), the Maaslandkering, the auction and de picturesque villages.

Green: Greenhouses not visible. The roads where greenhouses are not visible. Gardens or villas are blocking the view on the greenhouses.

grey: Transitional roads. In these roads there is a notion of greenhouses, but they are not clearly visible.

Blue: Greenhouses are clearly visible. These roads have an industrial character.

In the axis A4-Auction-A20 and alone the Maasdijk, the greenhouses are best visible.
While in the north, the boarder of the Hague, the greenhouses are less visible.

Legend:

Greenhouses visible

Greenhouses hidden

# Extreme scenarios

# 3 scenarios

Based on the chapter The futuristic idlily clash, different scenarios are possible. The scenarios meet the theory to a greater or lesser extent (explained in the reflection). Each scenario knows a different spatial combination of the romantic idyllic landscape beauty and the futuristic hi-tech beauty.

The three scenarios are explained one by one. The scenarios are made spatially by different visualisation. All three scenarios are created out of the theory. The functional aspects will be reflected in the next chapter.

### Scenario I: Greenhouse towers in an idyllic landscape

The first scenario creates an idyllic landscape on the whole Westland and put the greenhouses is towers. This scenario looks like most of the painting to explain the theory.

### Scenario II: Idyllic landscape on the second floor

The second scenario creates the idyllic landscape on the second floor. A view over the greenhouses should be created in more places and the overview should get a more natural appearance.

### Scenario III: Idyllic landscape between the greenhouses

The third scenario focus on an idlily landscape in between the greenhouses. In this scenario the greenhouses are hidden. And all the roads are made greener.

scenario I
- greenhouse towers in an open landscape -

scenario II
- Open view over the greenhouses -

scenario III
- Idyllic landscape between the greenhouses -

scenario I
- greenhouse towers in an open landscape -

# Greenhouse towers in an idyllic landscape

The first scenario creates an idyllic landscape on the whole Westland and put the greenhouse horticulture in towers. In the Westland almost every square centimetre is designed for efficiency and horticulture productional reasons. This scenario researches the spatial effect, when the surface of the landscape is not 100% used of this horticultural production. By separation the productional process from the surface, a whole landscape will become free.

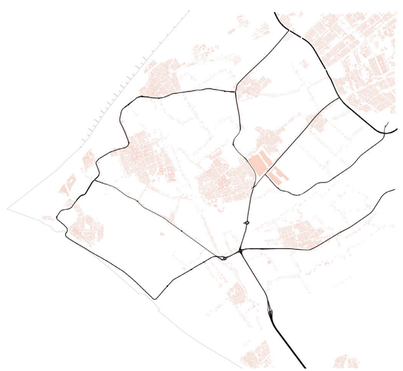
New identity for Westland.
Food production is one of the biggest enemies of wild nature. By detaching horticulture from the surface, a new natural surrounding can be made. The Westland is one of the most adapted soils in the Netherlands. Going back to the tidal landscapes of p. 34 is almost impossible. So instead of recreating nature the area will be focussing on showing the impact of food production on our landscapes. The landscape in between the greenhouse towers, should be extremely non-productive to show the effects of food production better. The landscape in between the greenhouse towers, will look mostly like the Oostvaardersplassen. The big park which will be created will function on provincial level. It will be a big contrast which the crowded southern Randstad.

Footnote: Introducing wild animals is hard in the Netherlands. Protests near the Oostvaardersplassen shows the discourse about the responsibility of people over animals versus the wild which cannot be touched. The aim of this scenario is to create a place which is beautiful and non-productive. Visitors feeding animals will not be stopped. The aim is not to reintroduce nature, but to show the current impact of our productive landscapes and create a contrast to the 100% efficiency culture of the Netherlands.

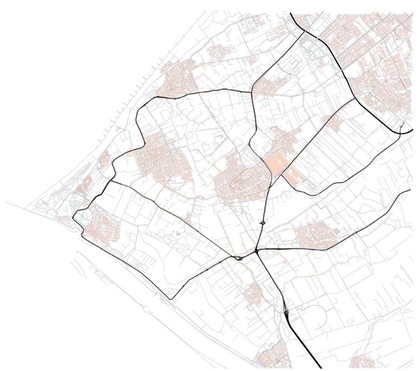
The first scenario is based on the photoshopped painting "De molen bij Wijk bij Duurstede" of Jacob Isaackszoon van Ruisdael
In the original painting of Jacob van Ruisdael, a windmill is situated in the middle. By that time windmills were seen as modern technology, like the greenhouses can be seen now.

# Spatial structure

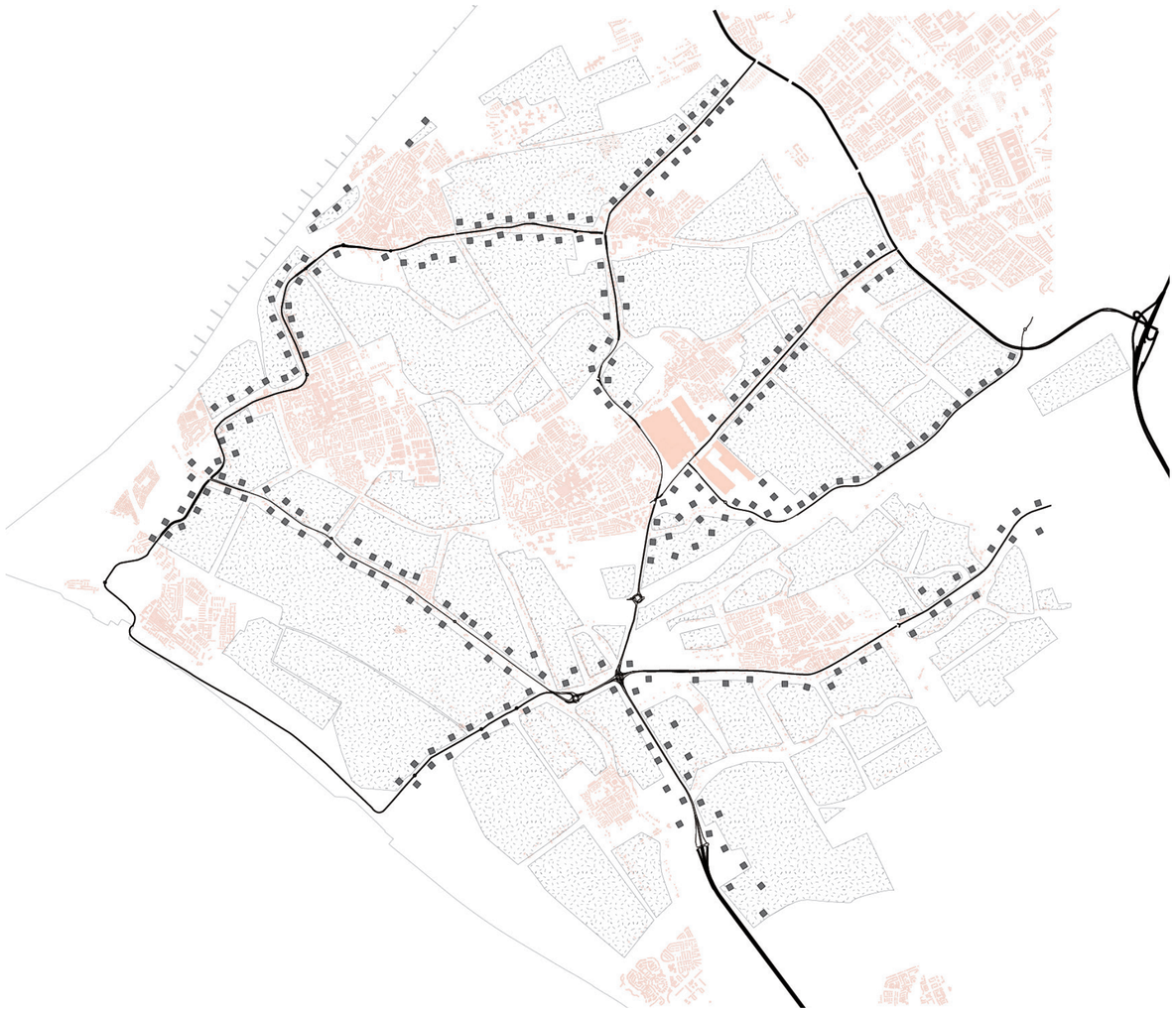
The greenhouse towers will be positioned at the biggest infrastructure. The current biggest N-roads can be kept in use this way. The minor roads will become truck free. These minor roads can be scaled down. Asphalt can be replaced by brick roads or could even be unpaved (the third scenario will elaborate on scaling down roads when becoming truck free).



The main infrastructure is connecting the villages and the auction with the highways. The greenhouse towers will be positioned at those roads.



The villas outside of the villages can be accessed by small scale brick paved or unpaved roads.



# Visual studies

In order to put all the greenhouse horticulture in towers, a lot of In order to put all the greenhouse horticulture in towers, a lot of floor space should be created. A food print of 30 x 30 m is chosen as minimum floor plan for the greenhouses. Smaller then 30x30 will be to inefficient.

## Hight study:

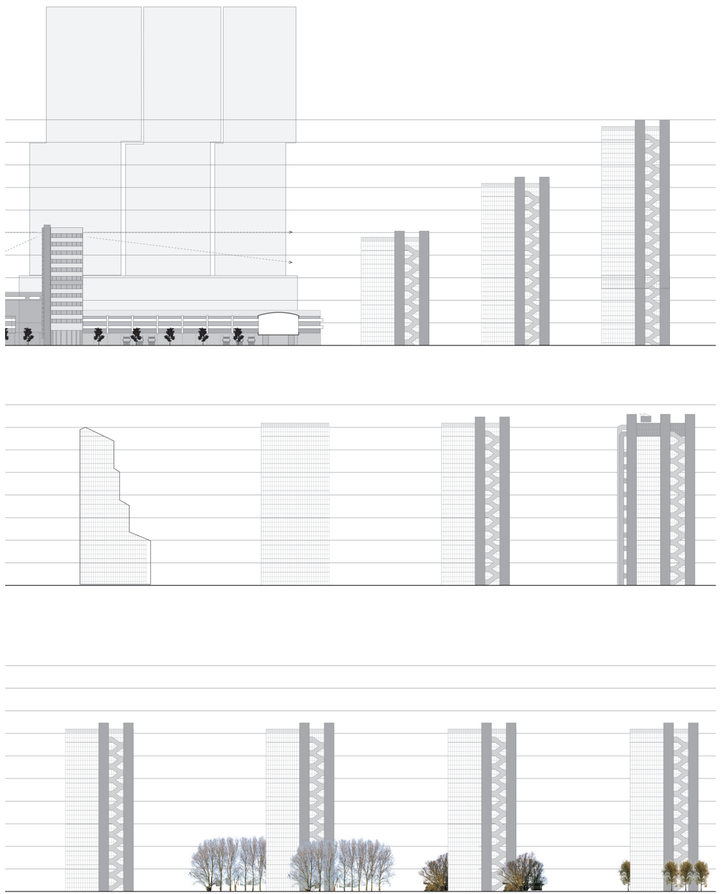
The office tower connected to the auction of Naaldwijk is the highest building of the Westland at this moment. All surrounding cities: Den Haag, Delft, Rotterdam, Schiedam and Vlaardingen have higher buildings. Multiple options show how high the greenhouse towers could be. The options lower than the auction, shows a symbolic order. However, a tower with a footprint of 30 x 30 and with a height of 50m does not have a slim silhouette. When a height of 70m is reached the towers is more than twice as high then broad. If a structure in the Netherlands is higher than 100m, stricter fire regulations are applicable. Constructions higher then 100m will rise in costs fast. Towers between 70 and 100 meters are most suitable.

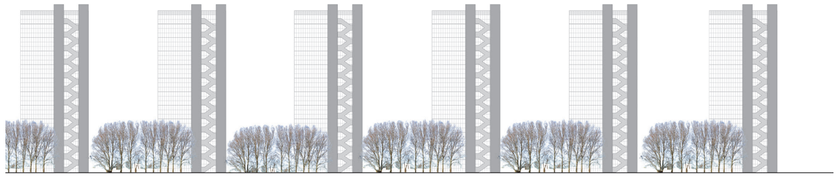
## Visual character:

The greenhouse horticultural towers should have a hi-tech and more visible character. The second study shows multiple options of greenhouse towers. Left; Greenhouses with a clean modern character. The appearance of these towers looks more like the greenhouses how we know them now. At the right more explanatory towers. The righter towers show how the towers are functioning inside.

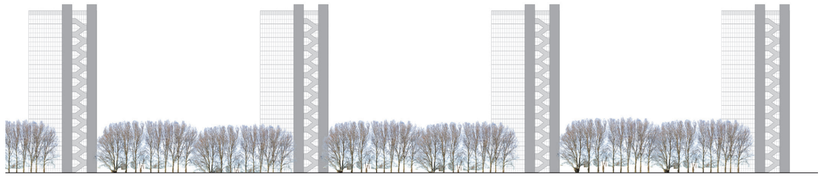
## Threes

The greenhouse tower will be positioned in a romantic and idyllic landscape. The three study show poplar trees, linden trees and willows. The poplar and willow three could look wilder than the linden trees. Besides can the poplar a willow grow high, this will make the visitors feel smaller.

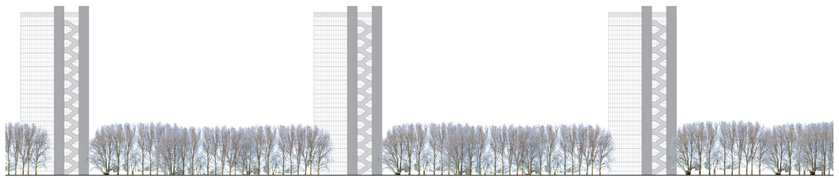




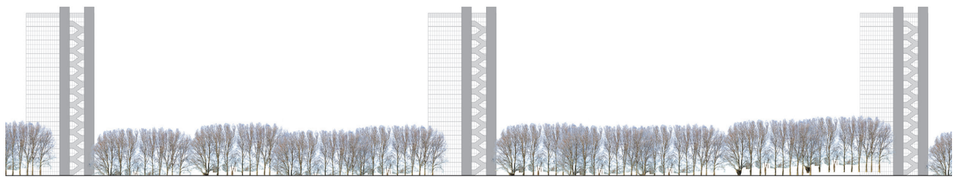
30 m distance



50 m distance



70 m distance



100 m distance

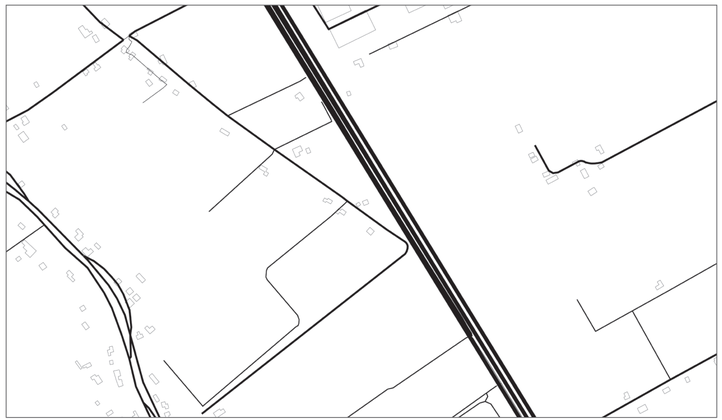
# Distance study

The distance between the towers should be around 70 m, as shown in option 3. The first options are too dense and the towers will form a wall and will not be seen as individual towers. If the towers are standing further than 100m from each other, the towers stand to individual.

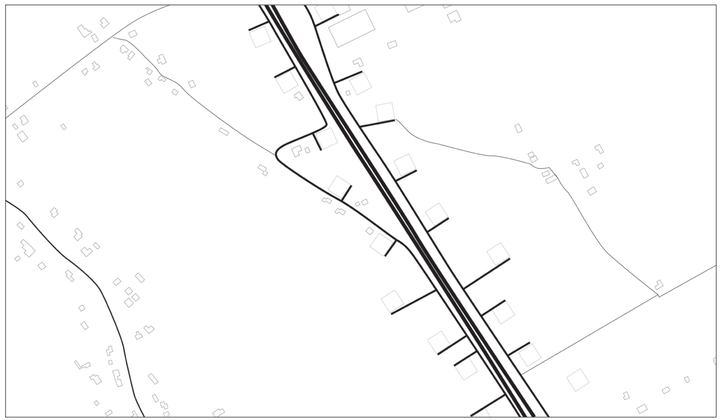
If the towers are only positioned at one side of the road, the towers could stand closer to each other. In the option below the towers are positioned 30m from each other. Because the towers are standing in the inside bend, more sky can be seen and the towers will show more impressive, without creating a claustrophobic atmosphere.

# Before and after

The greenhouse towers will be positioned next to the main roads in the Westland. These highways and N-roads will get parallel roads. These parallel roads will function for the logistics of the greenhouse towers.
This means that all other roads in the Westland will not house any trucks anymore and can be scaled down. These roads could have a more green and idyllic character. (See scenario III.)



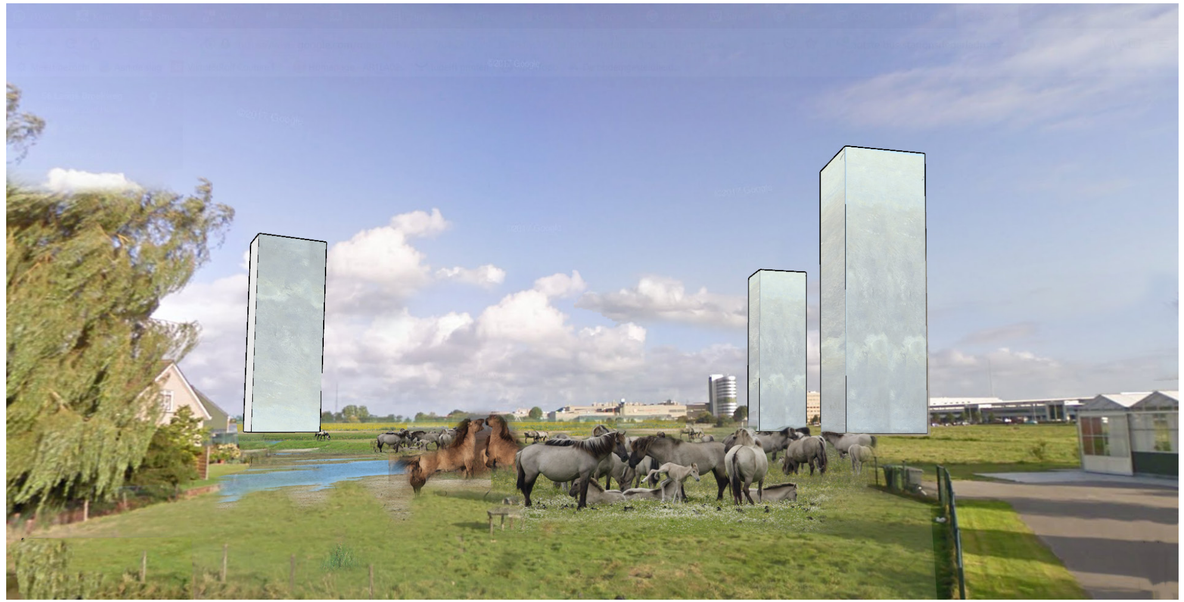
In the current situation almost all the roads are used by trucks



In the new situation all the trucks will drive along one axis only

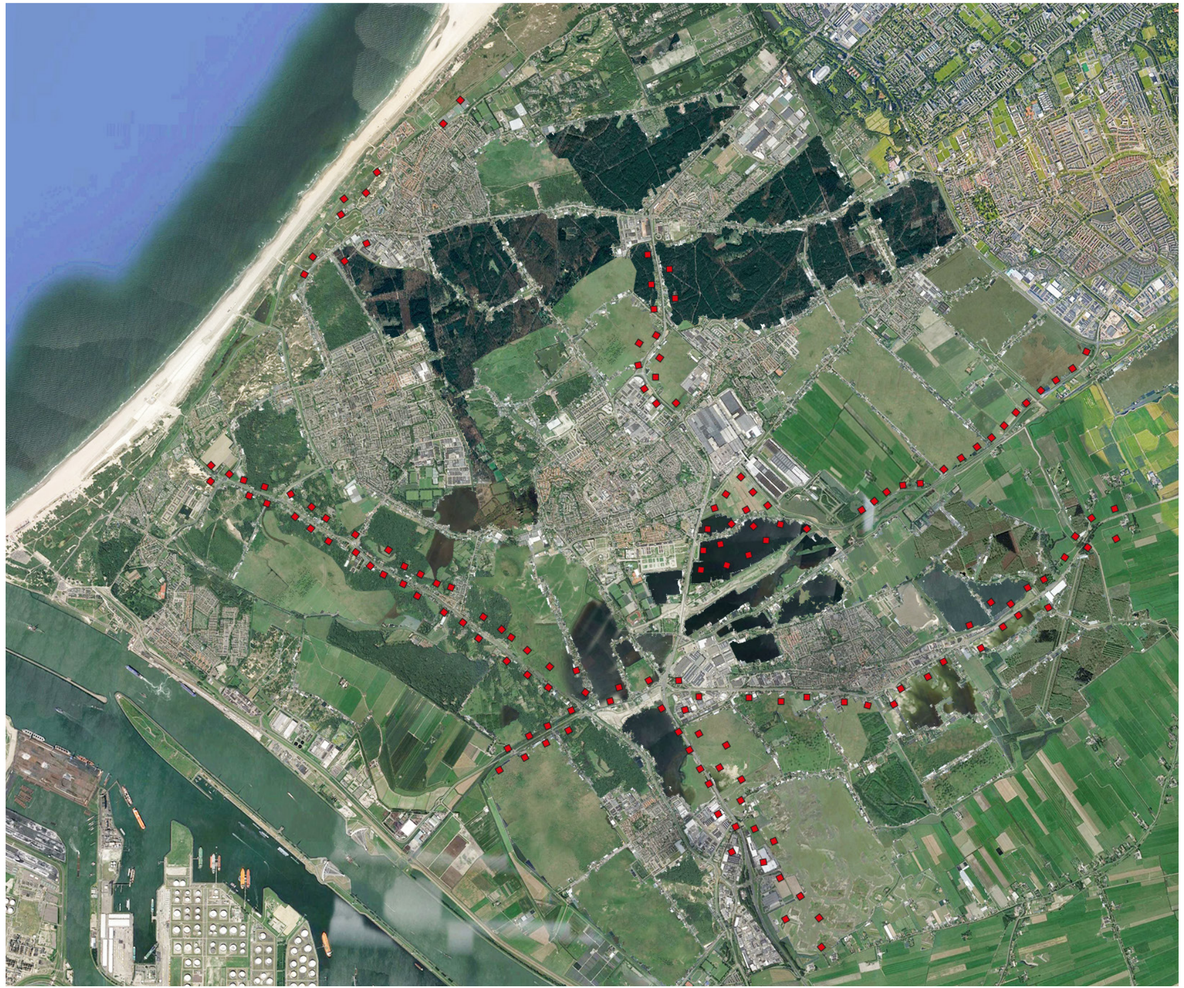
Current situation

New situation:
At the East the new nature-oriented landscape and at the West leisure and water houses.



View towards the greenhouse towers with wild nature in between. The auction of Naaldwijk is visible at the background





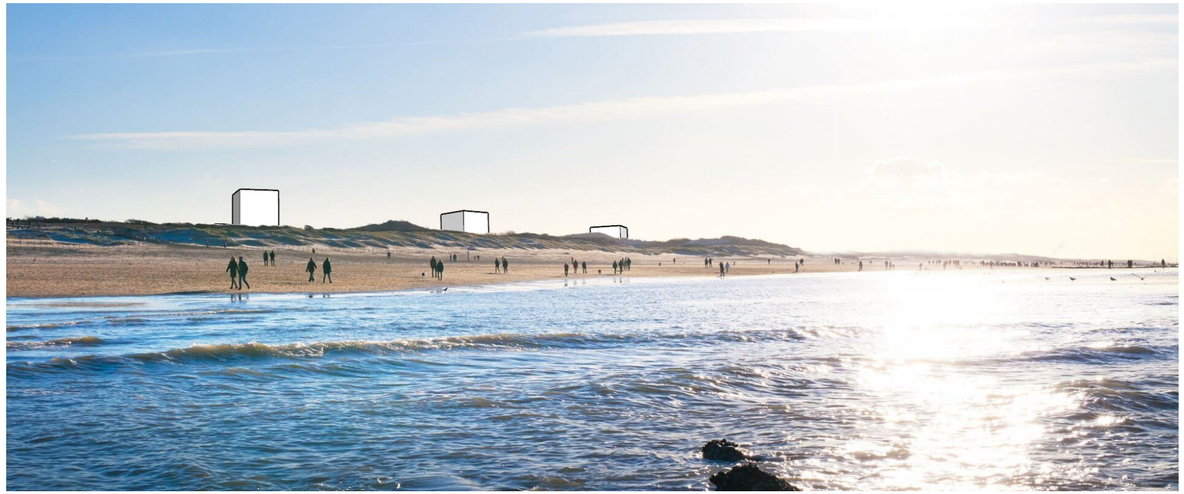
The Westland can be transformed into a wild nature reserve.

# Different atmospheres

The greenhouse towers, can be adapted to their environment. Just like every city treats their high rise differently, every landscape should ask for different design rules. In the images besides, two photo montages have been made quickly.
The upper shows how the coast of the Westland could treat with greenhouses towers. The greenhouse towers can be designed in such a way that the towers are not visible from the beach on (the view is blocked by the dunes). However, the towers could be visible while in being in the sea. In this way, the towers could function as a landmark between the pier of Scheveningen and the Maasvlakte, without changing the quiet atmosphere of the beach at the Westland.

The lower part shows how greenhouse towers can be positioned alone the Nieuwe Waterweg. In this montage the greenhouse towers have the same silhouette as the silhouette of Maassluis.





Greenhouse towers near  the beach of Monster

Greenhouse towers along the Nieuwe Waterweg

scenario II
- Open view over the greenhouses -

# Idyllic landscape on the second floor

In the second scenario the overview over the greenhouses is leading. This chapter is based on the analysis of the pages 56-65. By heighten up all the infrastructure, an overview over the landscape can be created.

SOURCE that the overview in the Dutch landscapes is impressive. In the Dutch polder landscapes, far sight is seen from the dikes. An overview over the greenhouses can be overwhelming. From higher places the greenhouses can be seen better. New viaducts from and towards the auction, will create an overview over the greenhouses. The greenhouses will get height limits, so the view will not be blocked.

New identity for Westland.

The greenhouse landscape can be seen by people living an visiting the Westland. A road towards the beach can attract a lot of people, which will cross the greenhouse landscape. the landscape will not have any recreational function. It will only create a cool view, most similar with the roads over the dams of the Deltawerken in Zeeland.

The open landscape should have similar qualities like polders with cows in it. A clear difference is the appearance of green. From the heighten up roads, the dunes will be visible. However, in the east and south the dunes will be less visible. So, in between the greenhouses, trees will be planted. These trees should grow higher than the greenhouses.

An overview over the greenhouses can be overwhelming. From higher places the greenhouses can be seen better

# Spatial structure

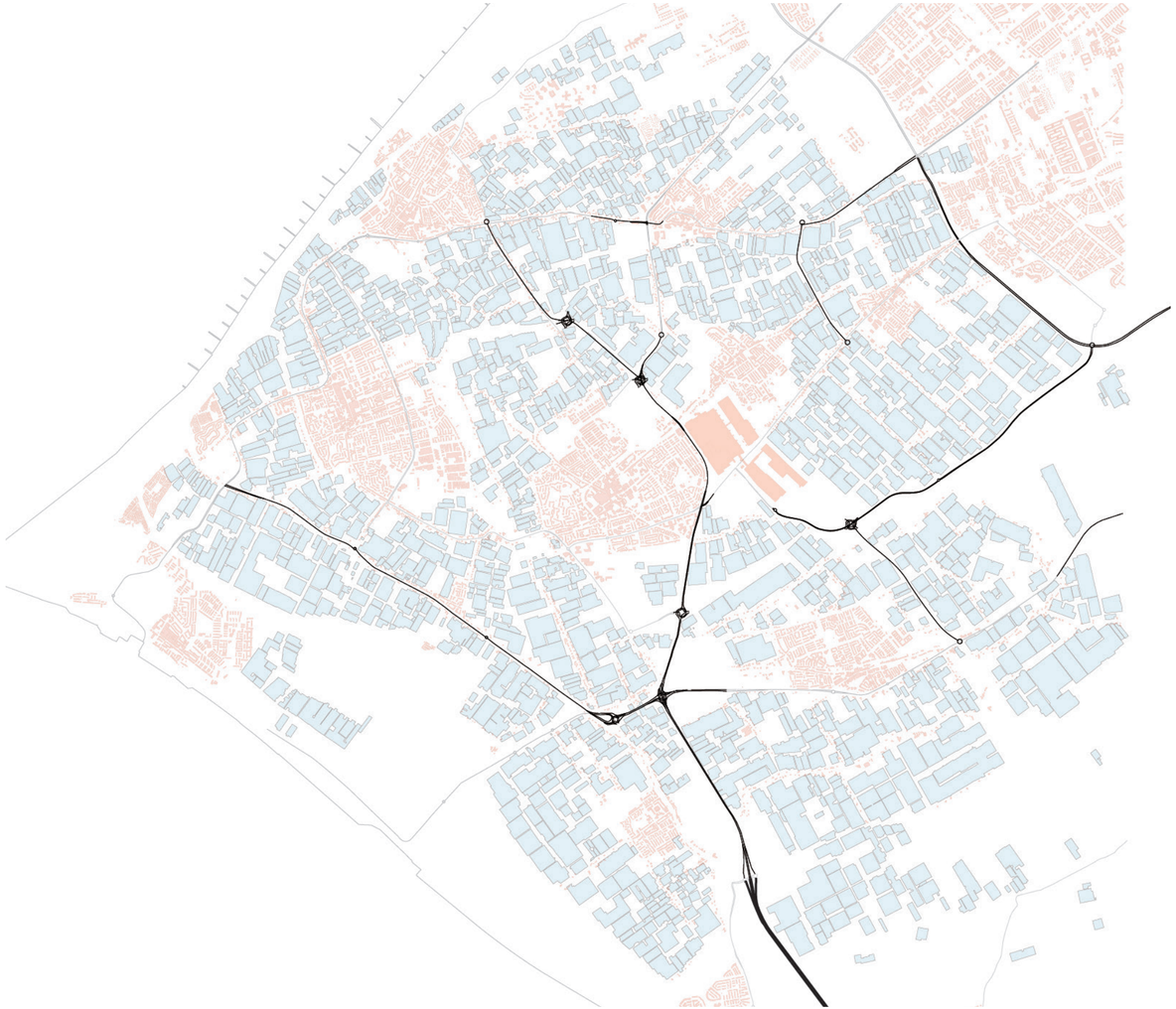
In order to overview the greenhouses, high viaduct will be built. The map on the page besides should the heighten up roads. The roads with a view over the greenhouse landscape can be divided into 3 types. The analysis besides show the division of them. In blue the existing high roads (The Maasdijk), in black the new flyovers towards the auction and in red the roads which have capacity problems at the moment. These roads have to be reconstructed in the near future and can be heighten up when reconstructed.

Proposed high positioned roads (blue: current higher positioned Maasdijk, Black main route towards auction, red: roads with capacity problems)

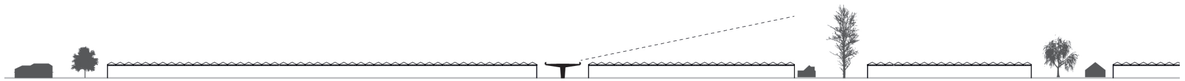
The map above shows the current view over the landscape: only on the Maasdijk a view over the greenhouses can be experienced.

In the new situation, more views over the greenhouses are created.

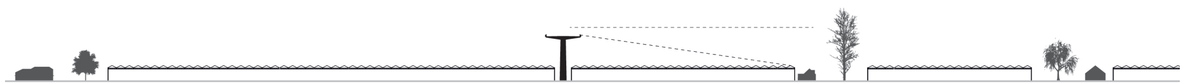




# Visual study green



7 meters: At 7 meters high, you are on the height of the higher greenhouses. To overview the greenhouses a higher point of view should be taken. If you previse the greenhouses from a higher point of view more roof surface can be seen.

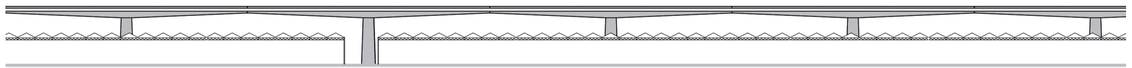


20 meters high: At a height of 20m the roofs of the greenhouses will not be clearly visible anymore. At this height you have to look to much down to view the roofs.

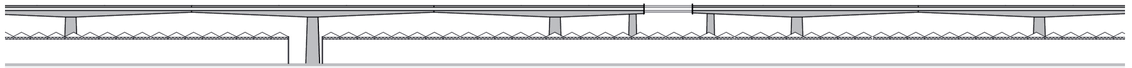
12 meters: A height around 12m is most wishful. At this height, an overview could be created without getting to detached with to ground.

View over greenhouses

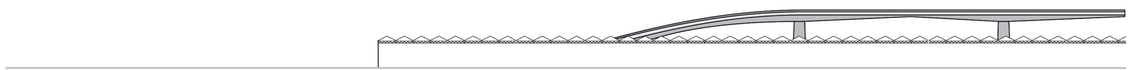
# Principle sections



The flyovers will be elevated 12m above the ground level. The design of the flyovers will aim for a light appearance.

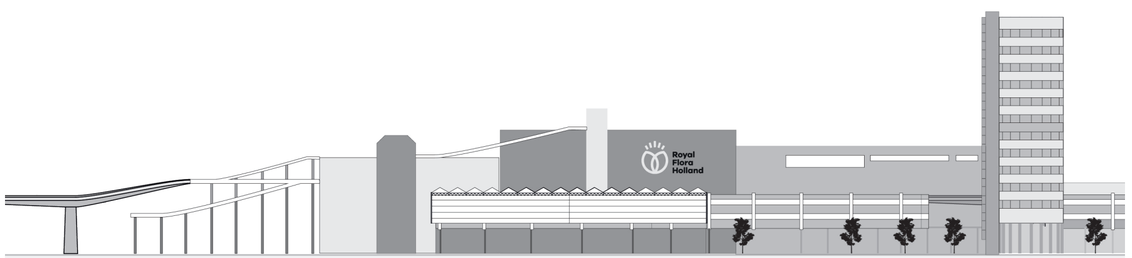


Roundabouts or other crossings will be heighten up too.



The elevation begins after entering the greenhouse landscape.

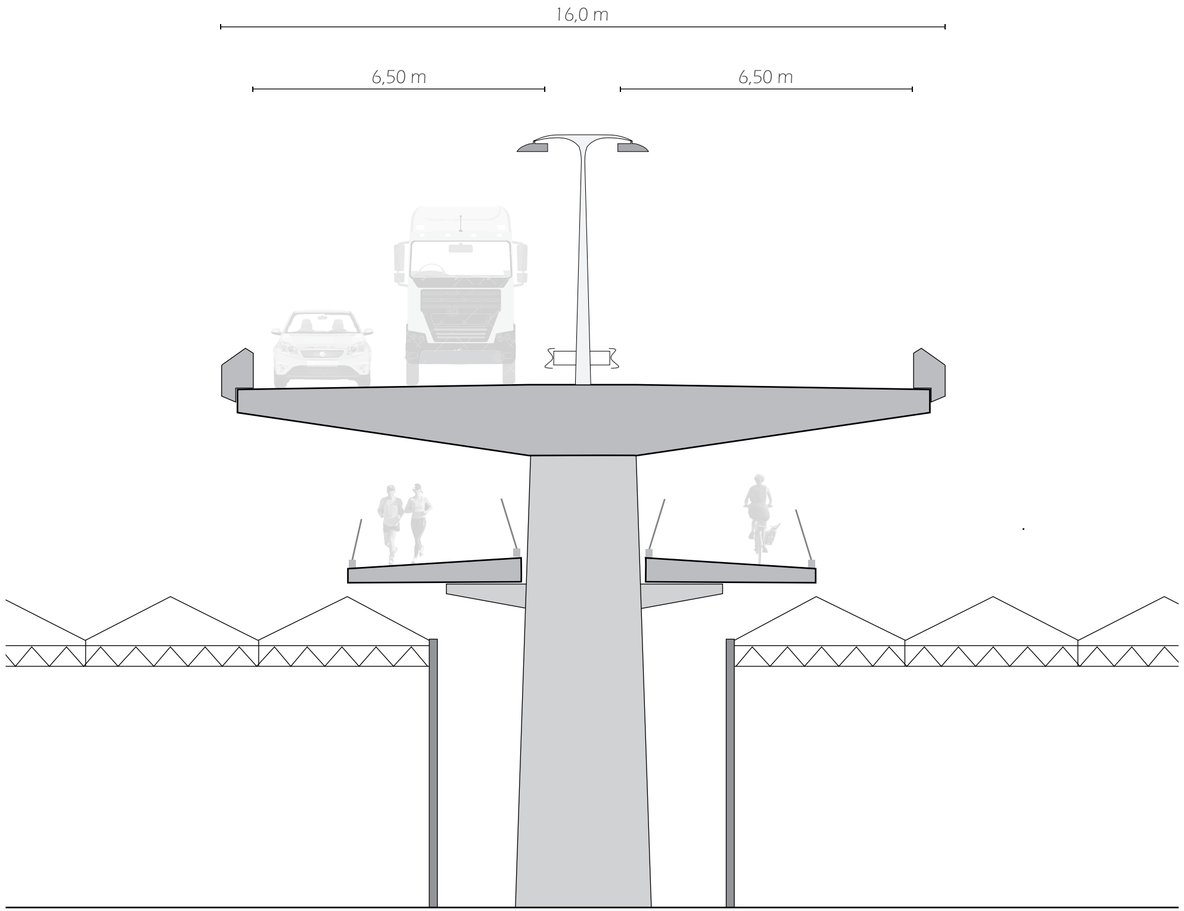
Some of the buildings at the industrial area are higher then 12m already. Building higher then 12m will be stimulated at the industrial area.




The rooftop of the auction (which is currently used as a parking for trucks) will be accessible by flyover.

# New situation near auction

Map of flyovers, 1:10.000




Section of flyover, 1:100

scenario III
- Idyllic landscape between the greenhouses -

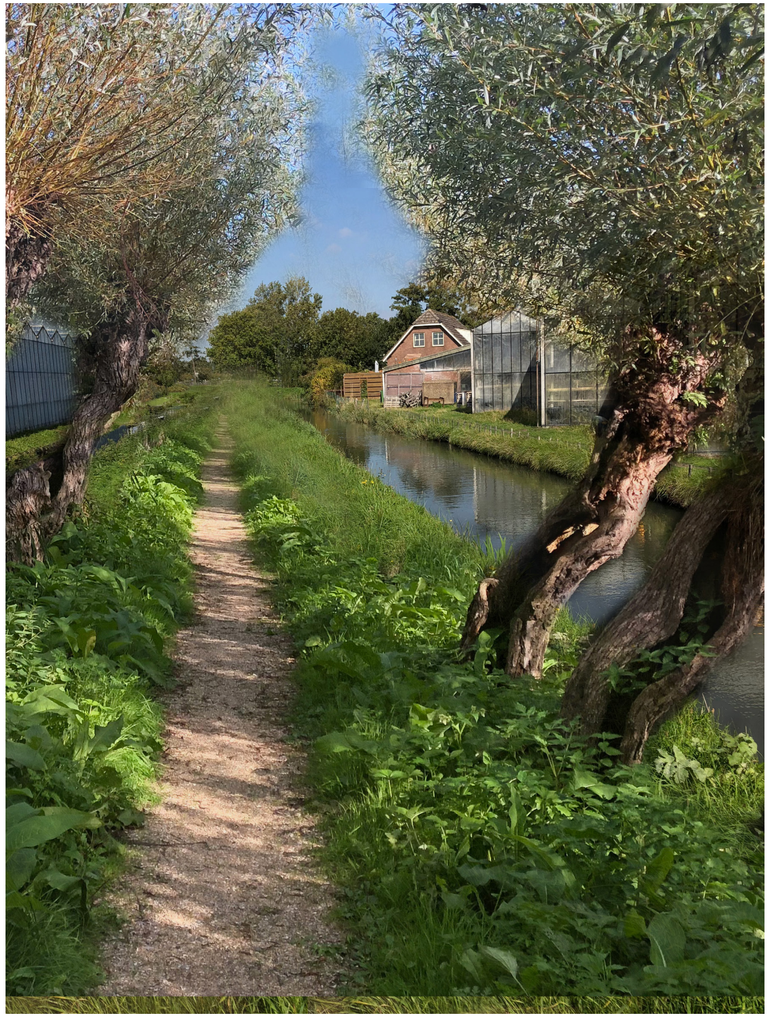
# Idyllic landscape between the greenhouses

In the scenario III: Idyllic landscape between the greenhouses, the existing spaces in between the greenhouses will be transformed into idyllic routes in between the greenhouses. In interieur of the greenhouses is getting more and more hi-tech. So, the exterior should be in strong contrast with it. In this scenario the public space should appear as green and idyllic as possible.

In scenario I and II infrastructural networks change. In both scenarios some roads will be truck free. So, this chapter will also elaborate on the new appearance of the truck free roads.

## New identity

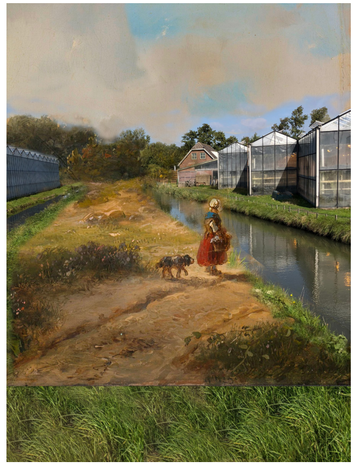
The Westland will get a slightly greener identity. The difference between truck and truck-free roads will determine the spatial possibilities and therefore the appearance and new identity of the Westland. If all roads will stay truck friendly, the area will not have an attraction on the inhabitants of the close by cities.



# Visual Study

The visual study besides shows different options for a bike path in between the greenhouses. By adding grass, bushed or trees, the appearance of the path is softer. In most of the options, the path is less functional. However, it shows the divers possibilities of how a road can look like if efficiency is less important. If new roads are introduced, like on page 99, these roads can be shaped differently.

current situation



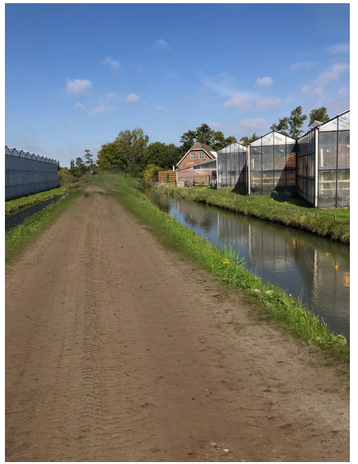
painting photoshopped in situation

winding road

shell path

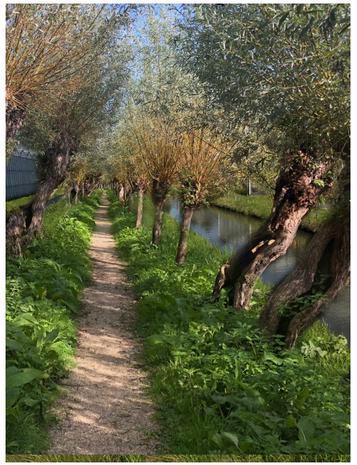
without lantern poles

without path

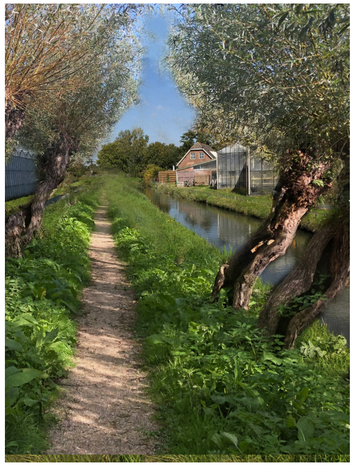


dirt road

shell path without lantern poles



willows on the road

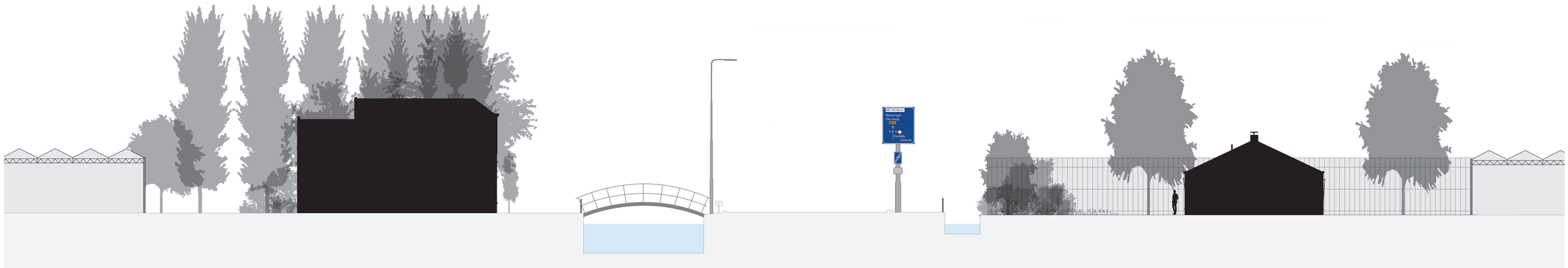


openings in between the willows

# Current situation

1:200

In the current situation, most of the roads are dull and grey. Road signs and lantern poles create a monotone functional appearance. The facades of the greenhouses block the view and create monotone walls.

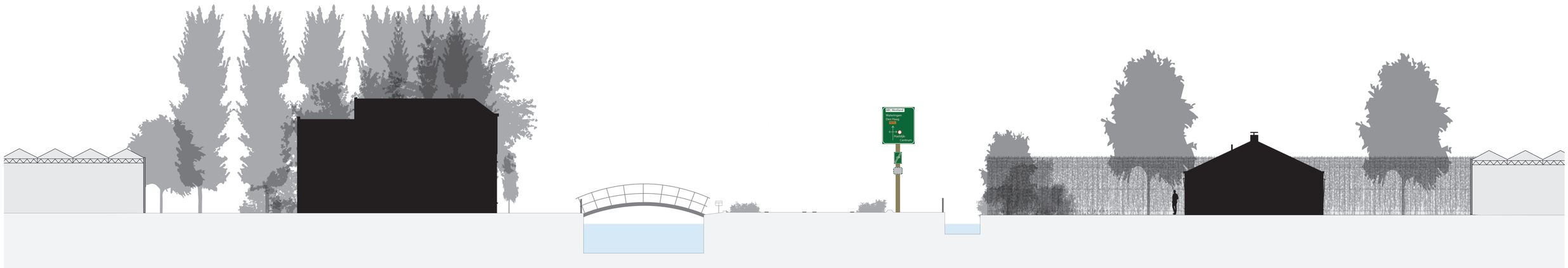


# New situation

1:200

The appearance of the road can change which small changes. Softer colours can be introduced. Lantern poles can be replaced by lights in the road itself. Asphalt can be produced in a browner colour and road signs can be constructed in green instead of blue. Small bushed can be introduced.

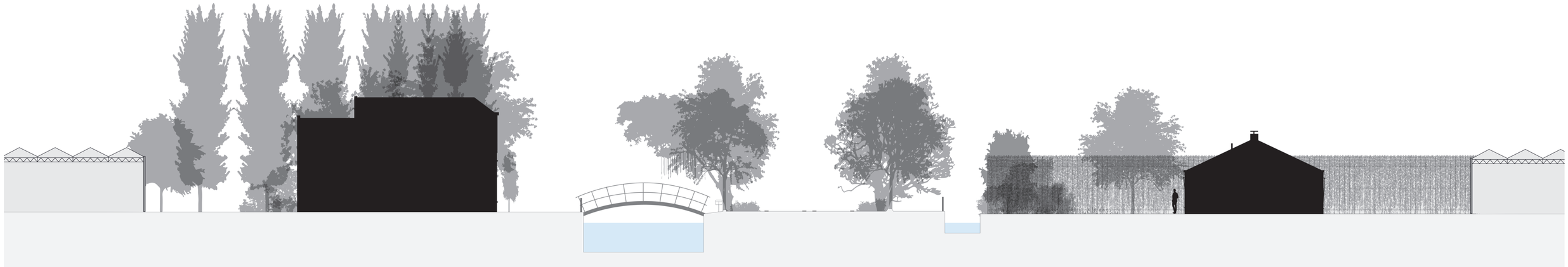
By creating green walls against the greenhouses, the total atmosphere is more rural and idyllic.



# New situation if truck free

1:200

If roads will house less traffic, like scenario I or if new roads will be introduced like in scenario II, existing roads will house less truck and other traffic. A lot is possible if the roads will get less traffic. Speed limits will be lowered and the roads can be dimensioned smaller. More space for trees is possible.



# Evaluation scenarios

All three scenarios give fruitful design ideas and concepts. By comparing the scenarios with each other, the value of an element can be reconsidered. And therefore, better used in the final design. The scenarios will be evaluated by the connection between people and the food production, the elements found by the Compendium voor de Leefomgeving (CLO) (page 12.) and horticultural productivity.

Scenario I:
By putting greenhouses in a tower, the visibility of the greenhouses will rise. A visual connection is made. However, the question rises if this is the way people want to previse the greenhouses as an element in a polder. It can fit in the beauty describe in the poem of Joop Alleblas. But in the raking of the CLO it will be seen as horizon pollution. However, the other aspects like nature, history and the age of a landscape will be restored. According to the research of the CLO these elements are values more than the horizon pollution devaluate the appreciation. If more nature will be created and historical elements can be seen better, towers in the landscape can be considered as a serious option.
To keep the same of even raise productional greenhouse surface, a high footprint is still needed. A high number of towers will be needed. The biggest design challenge of scenario I is to diversify the towers and create unique spaces. A landscape full of similar towers will not restore historical elements and will therefore be appreciated less.
On the long term it will be hard to explain that the greenhouse towers have created the open lands. In a few generation, it will look like the greenhouse towers have destroyed the open polders. It wiil not be clear visible that the greenhouses towers have provide open land. It willl be an challenge to keep the connection with the current landscape.

Scenario II:
By elevating the main roads an open landscape above the greenhouses will be visible. The big scale of the greenhouses will be seen. A visible connection with the greenhouse sector is created. This intervention wont influence one of the elements the CLO distinguish. However, it fit perfectly in the beauty described in the Poem by Joop Alleblas. Most of the elements Alleblas describes are better visible. This intervention will not raise greenhouses surface. The investments are for beauty reasons only.

Scenario III:
In the third scenario the connection with the food production will be completely lost. Hiding greenhouses, will not create a connection between this food production sector and the people. However, a more natural character is the element which influence the landscape appreciation the most cording to the CLO. The beauty describes in the poem of Joop Alleblas will be completely erased. Just like scenario II, the productional surface will not rise at all. Moreover, hiding greenhouse will cost space. Especially greenifying roads will costs a lot of space and will decrease efficiency. If new road of scenario II will be created, other roads could be scaled down and space could become available.

| | Connection to the food sector | CLO method | Industrial beauty | Horticultural productivity |
|---|---|---|---|---|
| Scenario I | The horticultural sector will be better visible | Natural appearance and historical characteristics will be created by a high level of urbanity and horizon pollution | The greenhouses will be higher and therefore more impressive | Productivity could rise in this scenario |
| Scenario II | The horticultural sector will be better visible | A higher level of urbanity will be visible | The greenhouses will be overseen. The big scale of the production will be better visible | Productivity could not rise in this scenario |
| Scenario III | The horticultural sector will be less visible | Natural appearance will be created. Horizon pollution can be hidden in the scenario | By hiding the greenhouses, the horticultural industry will not be visible anymore | Productivity could not rise in this scenario |

# Design

# Design Proposal

1:50.000

With the knowledge learned in the scenarios, a design is proposed. In the proposed design, the total footprint of the greenhouses will decrease. This means at the open area of Midden-Delftland will "grow". And the Westland area will "shrink". By stacking greenhouses, more horticulture surface will be reach. In this proposed design, the horticulture surface will increase up to 250% of the current surface.

## Mobility

If the horticulture surface will increase with 250%, more truck transport will be needed. At the moment the roads are still mainly used by passenger cars. To decrease the amount of passenger cars, the Randstadrail of The Hague and Metroline of Rotterdam will be extended into the Westland. The track of the new public transport line will be positioned at a high level. In this way a view over the greenhouses is created.
The lanes of the main transportation roads will be doubled. Along the broad roads, greenhouse towers will be positioned. The greenhouse towers will benefit from the easy routes towards the flower auction and vegetable salers.

The different design principles will be explained at the next page.

Legend:

- Cattle grounds
- Greenhouse area (one floor)
- Greenhouse area (Multiple floors)
- heighten up roads
- Main roads truck infrastrcture
- Minor roads truck infrastrcture
- Flower auction and vegetable salers
- Greenhouse towers
- Bike routes
- Bike routes in a green corridor
- Extended Metroline

# Design principles

1:100.000

The maps beside show the different principle in the design as explored in the former scenarios.

Scenario I: Greenhouse towers in an open landscape
Towers will be positioned alone the main truck roads and green fingers of open cattle land shall reach the Westland.

Scenario II: Open view over the greenhouses
The route on the Maasdijk will stay the same, greenhouses along the dike may not be heighten up,. The view over the greenhouses is protected. The N223 close to De Lier will be heightened up to create a similar experience over the greenhouses.

Scenario III: Idyllic landscape between the greenhouses
In the North side of the Westland greenhouses will be heighten up to 5 floors. However along the rivers a zone of 200 meters will be unbuild. This zone will function as a recreational area. In the area outdoor activities will take place. This zone is worked out in the upcoming pages.

Scenario I: Greenhouse towers in an open landscape

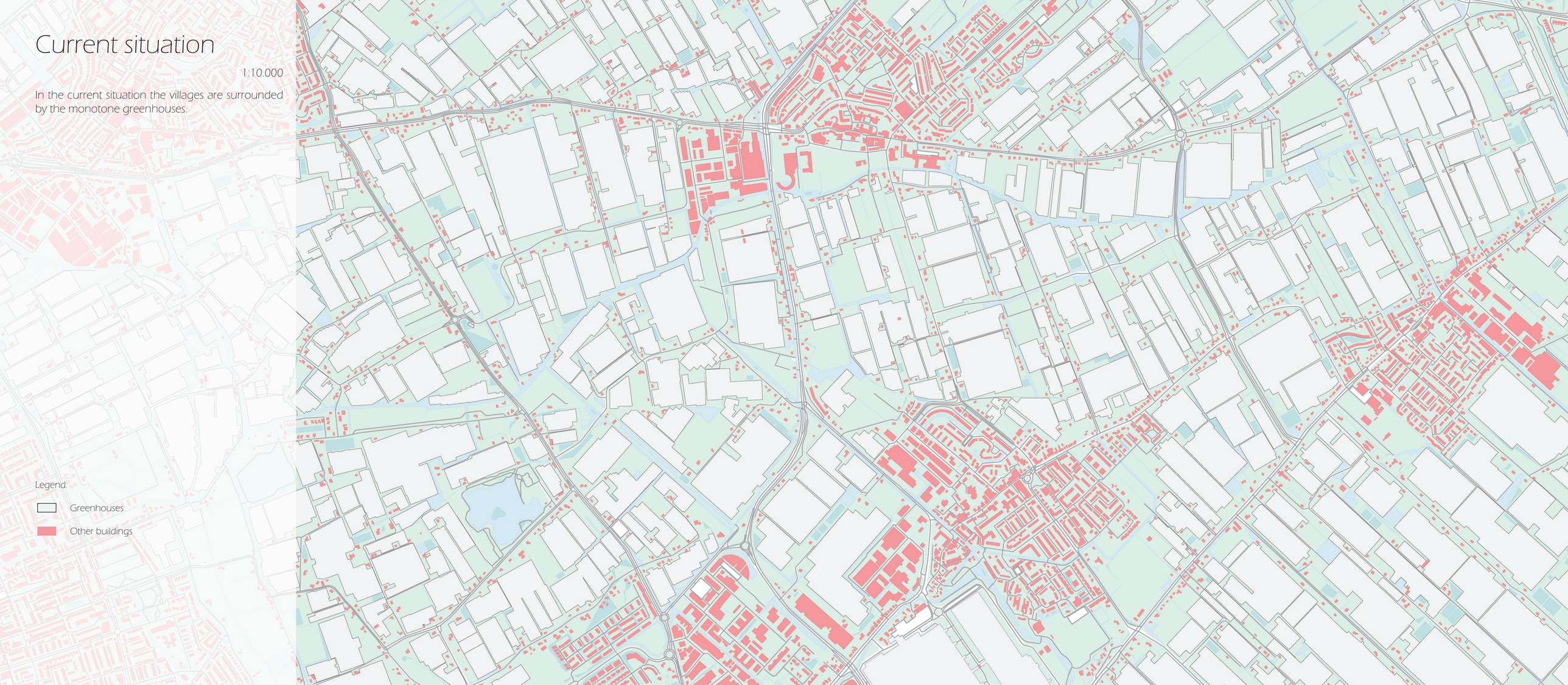
Scenario II: Open view over the greenhouses

Scenario III: Idyllic landscape between the greenhouses

# Current situation

1:10.000

In the current situation the villages are surrounded by the monotone greenhouses.



# Proposed design

1:10.000

In the proposed design, two atmospheres will be positioned next to each other. An the one side the high productive greenhouses. The greenhouses will be accessible by big infrastructure lines. And on the other side the picturesque river zone. This recreational route is designed for bikes and pedestrians.

The two cross each other with over passes or under passes.

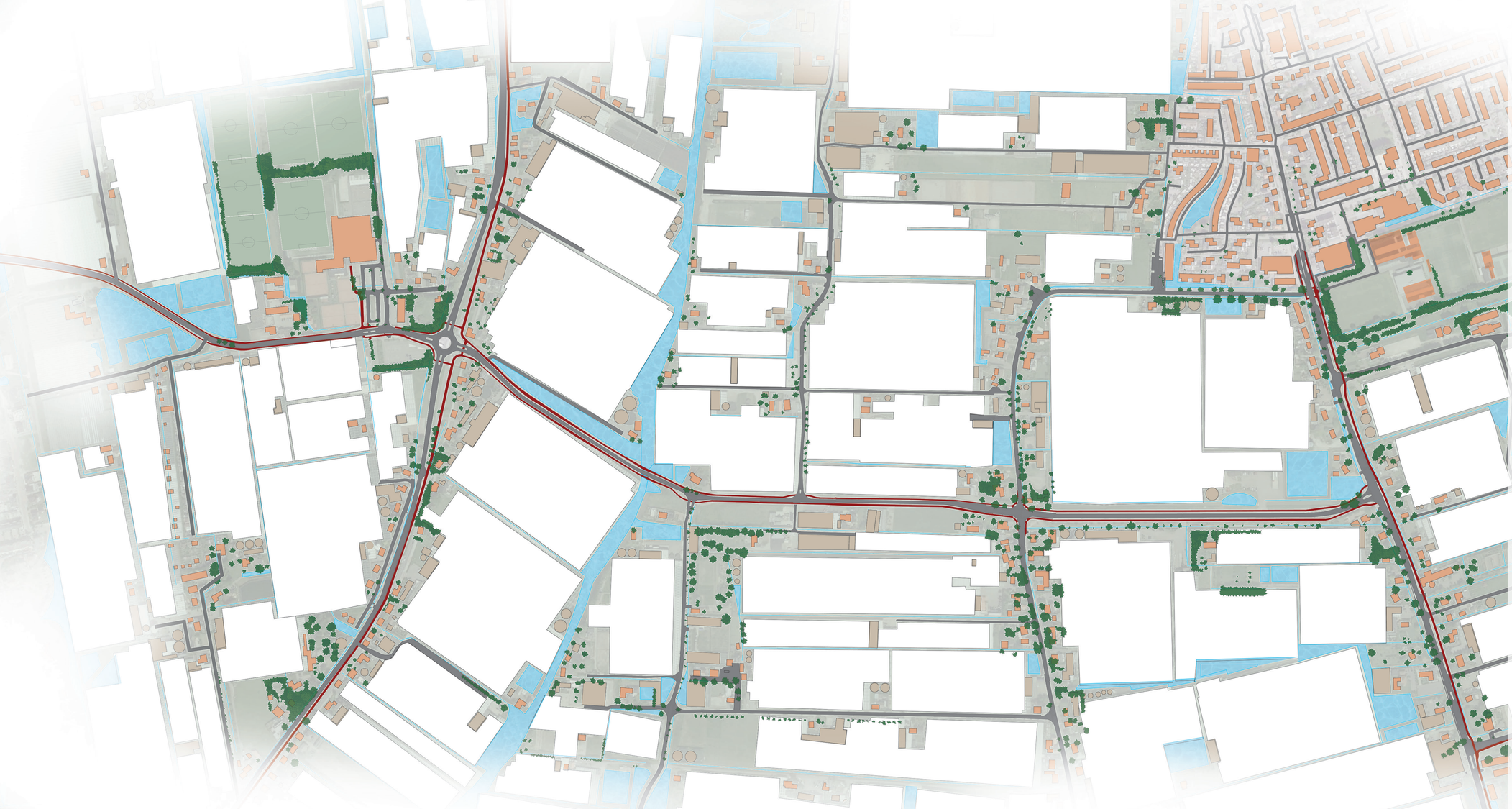
Legend:

- Truck and car roads
- Bike lanes with an open and idyllic character
- Bike lanes with a dence and industrial character
- Greenhouses and other buildings
- Greenhouse towers
- Metroline
- Water

# Currrent situation

1:5.000

In the current situation all greenhouses are orientated at the roads. The river Gantel (which use to function as main transportation line) is now the backside of the greenhouses. The river isn't visible form bike or car and is only accessible by boat.
The lack of open space creates a dull are monotone industrial character.



Legend:

- Bike lanes
- Truck/car roads
- Houses
- Greenhouses
- Industrial buildings
- Trees
- Water

# New situation

1:5.000

In the new situation, a 200meter wide recreational zone will be created along the river. The new meandering river, winding roads and a repetition of enclosed spaces will create a picturesque atmosphere.
Straight bike line from the villages towards the recreational zone will have a dense and hi-tech character. Greenhouses may even build over this lane, as long as the bike path stays 2meter wide.

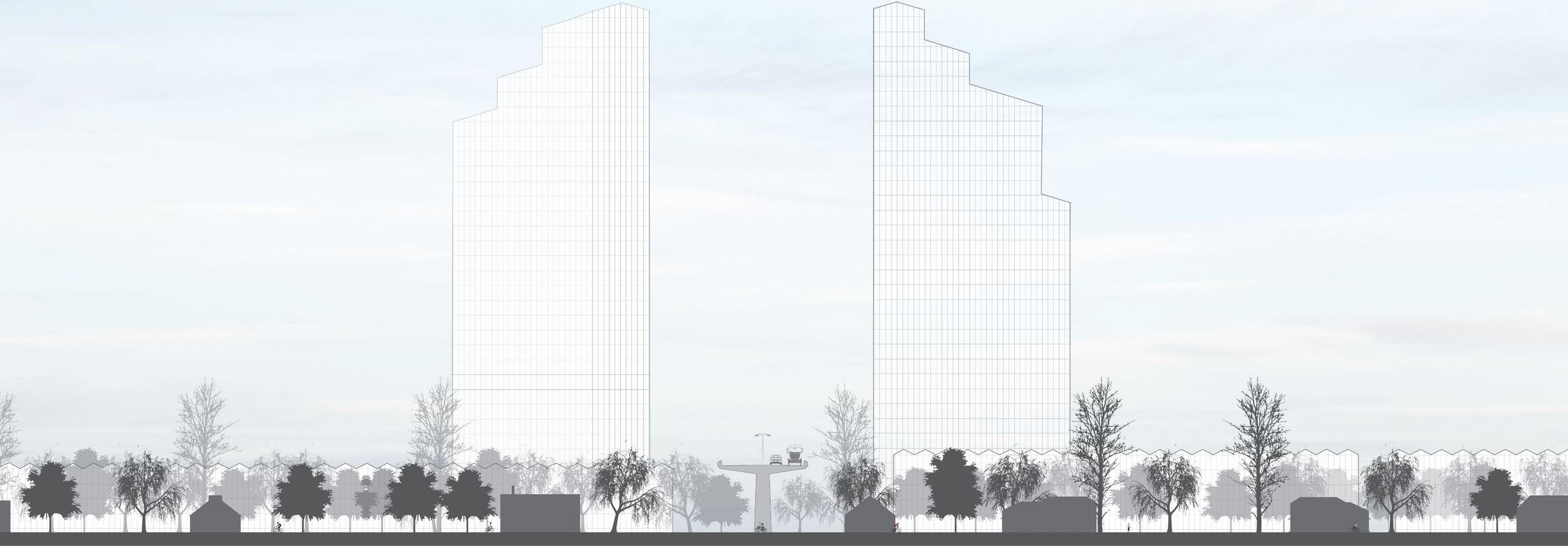
A zone in between Kwintheul and Honselersdijk will be made greenhouse free. The zone will get an open character to experience some openness in the dense Westland. By letting goats graze at this area, the area will stay open "empty".

Legend:

- New sport fields
- Restaurant
- Open field
- Orchard
- Camping
- Playground
- Harbour
- Flower garden
- Fishing spot
- Goat farms
- At old sport fields, new greenhouses will be build.
- At old sport fields, new houses will be build.

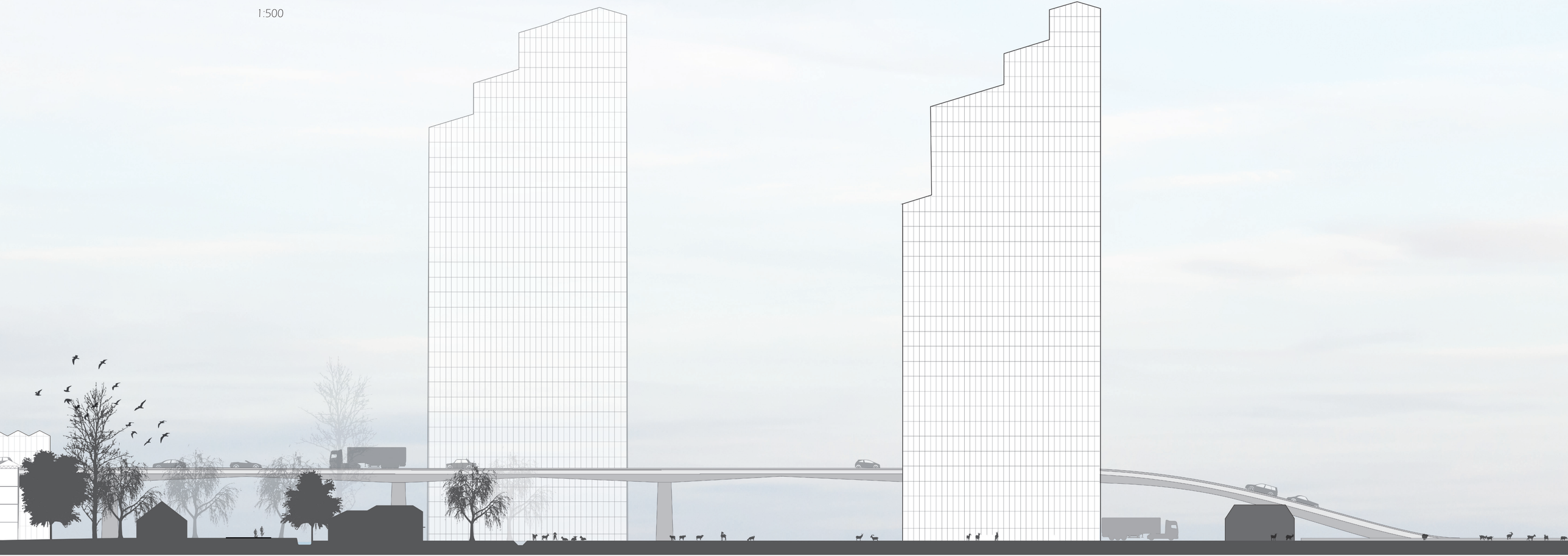
# Section flyover

1:500



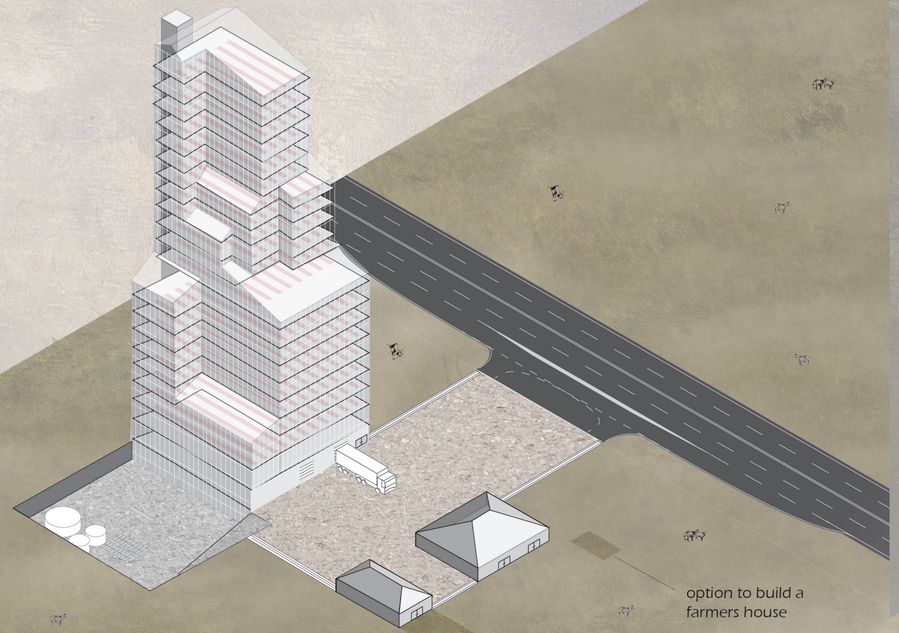
# Section ribbon village and open field

1:500



# Axonometric drawing greenhouse tower

1:1.000



option to build a farmers house

option to extend storage goat farm

+ 2-21 Agricultural floors
13.500m2 / 1,35 ha

+1: Packing & staff room
900m2

0: Storage and expedition
900 m2

-1: Water and climate machines
900 m2+ 900m2 (outdoor)

Temperature, UV-radiation and humidity can be controlled each floor. The UV-lamps will give a pink light atmosphere

The ground floor of the tower is positioned at the same level as the cargo of the truck

The goat farm and the green-house tower share their parking space

A cattle grid functions as a minimal boarder between the farm land and the parking

On the -1 floor machines are positioned out of sight.

Interior greenhouse tower

Night view form main road

Evening view from greenn corridor

Day view from downscaled road

# Section river

1:500

# Section river (by night)

1:200

# Conclusion, answer research question

## Beauty and productive landscapes

The goal of this research was to reshape the landscape of the Westland in order to preserve the beauty of the landscape better.

## When is the Westlands landscape defined as beautiful?

In this thesis, I stated that the Westland can be seen as one big machine. This machine knows a certain type of industrial beauty its selves. The big scale and the high level of technology can be prevised better by stacking the greenhouses. However, this type of industrial beauty is only one perspective towards beauty. In the industrial age this big scale factories were criticised already. It was in this time, that the romantic painter's movement arose. This movement glorified wild nature. In the current situation both of these types of beauty are hardly experienced. Hitech greenhouses are block by tiny gardens. By creating more extremes, the industrial hi-tech beauty and the natural beauty of this fertile landscape can both be perceived better. If these extremes are both visible, I stated this landscape as beautiful.

## How do we experience the greenhouse landscape at the moment?

Currently, the greenhouse landscape is prevised in different ways. The big scale of the greenhouses can be seen for a higher point. Only from a higher place, the big size and high number of greenhouses can be perceived. Many greenhouses are not visible from ground level. Villas with their gardens block the view towards the greenhouses. However, the gardens are not that big that a natural environment is created.

## How can we reshape the Westland to experience the beauty of the Westland better?

The final design shows how we can experience this industrial and idyllic beauty better. By stacking the greenhouses, the big scale of a greenhouse can be perceived better. The big scale of the greenhouses is clearly visible from the ground level now. However, more space will be created for gardens and nature areas. In this way, the greenhouses will be positioned in a more natural surrounding. The industrial and idyllic beauty in the Westland, will be strengthen.

Stacked greenhouse

# Reflection

This chapter reflects on the objectives and process of this thesis.

## Beauty

The biggest challenge of my thesis was to define the beauty of the Wetland. The term beauty is so personal that defining this is hard. I stated a vision of beauty in this thesis but that is my personal vision. It will be a challenge to convince people to create my design since it is based on a personal vision and not on easily measurable parameters. On the other hand, is the Westland extremely focussed on production and optimisation currently. By designing for the Westland from a completely different method, new ideas and concept can be generated. In my design more m2 meters of greenhouse horticulture are positioned then in nowadays. However, this was not the main purpose of this research. The main purpose of stacking greenhouses was its impressive character.

## Relation graduation project and studio topic

The studio Design of the Urban Fabric is a studio which differentiate it selves by its research by design approach. My graduation project has been design driven from the beginning on. Even developing a concept and defining research question was based on a photoshopped image, which could be seen as my first design attempt. Besides is working in scenario a common approach in this studio, this was a key element in my methodology.

## Relation between research and design

As mentioned in the former paragraph, was the design leading in my approach. Spatial research question came of test design and scenarios. The literature research was also design driven. The theoretical chapter is in the beginning of this report but the fundaments of this chapter only arose after the P3 presentation.

## The value of my way of working

In the beginning of my graduation project I aimed for finishing with an exposition. After presentation a series of photoshopped paintings at my midterm (P2-presenation), I lost focus on this aim. I did not present an exposition as I hoped for in the beginning of this year. However, this aim helped me to think about presentation methods in an early state. Besides did accelerate my way of presenting things. Although, I did not succeed in creating an exposition, as I aimed for in the beginning, I am happy I did set this goal. It forced me to think and design in a different way.

## The academic and societal value

The ethical debate I touched in my design is the growing gap between consumers, their food and food producing landscapes. Besides, does Dutch landscapes have a high cultural value. A challenge for the future will be to reduces the ecological footprint of our food patterns. Living a more vegetarian landscape will change the food producing landscapes. In my graduation project I tried to touch this debate by researching the beauty within greenhouse landscapes.

## Recommendation for further research and transferability of this graduation project.

This thesis is mainly beauty based. It would be interesting to compare this study with a detail exploration of the possibilities of stacking greenhouses and its optimisation processes.
Another recommendation for further research is to use the method of this thesis for other productional or industrial oriented areas. Parts in the harbour of Rotterdam, for instance, can be reshaped with a similar approach.

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