A Framework of Time

Revitalising the Palimpsest
of the Park Arentsburgh Area

Julius Knoester
Master Thesis Report

Colofon

TUDelft

Abstract

This research explores how layered cultural heritage can serve as a guiding framework for spatial design, using the park Arentsburgh area in Voorburg, the Netherlands, as a case study. The park Arentsburgh area is historically rich yet spatially fragmented site, existing of the archaeological remains UNESCO World Heritage site Forum Hadriani, the former 17th century estates Hoekenburg, Arentsburgh and Heeswijk, and the national monument park Arentsburgh. Despite its monumental designation, much of the area's historical depth remains underrepresented or physically disrupted by modern development. In response to this condition, the following research question is applied:

"What landscape strategies can be developed and applied to visualise different layers of heritage above ground?"

The different layers are classified within a landscape biography offering a conceptual structure for understanding their varying degrees of continuity and spatial expression. **Hidden Heritage** (Forum Hadriani), where traces are still present but not represented above the surface. **Lost Heritage** (17th century Estates, the traces have been removed from the landscape and can only be recalled through historical maps and writing. **Damaged Heritage** (Landscape park), physically present in the landscape, however its spatial integrity has been partially compromised by developments.

This research develops landscape strategies to visualise and reinterpret historical layers in the fragmented site of the park Arentsburgh area. Building on the classification of heritage into Hidden, Lost, and Damaged categories, the strategies are extracted by looking at the larger context and relevant reference projects for each layer. Strategies for **Hidden Heritage** are emphasising original scale, highlighting underlying spatial structures and reinterpreting historical elements through new materials. Strategies for **Lost Heritage** are improving spatial characteristics tied to historical parcellation, reconstructing garden typologies where possible and reinstating historical materials. Strategies for **Damaged Heritage** are re-establishing internal connections, restoring sightlines and using consistent materials to reinforce spatial coherence.

The design process is structured as a collage, drawing from the design strategies and overlapping historical materials and spatial traces to assemble a coherent yet layered landscape design for the park Arentsburgh area. Grounded in the concept of palimpsest and informed by academic eclecticism, the project seeks not to replicate the past but to synthesise its traces into a contemporary spatial framework. The aim is to integrate the multiple historical layers into a landscape design that not only makes heritage legible but also supports public functions.

Keywords
Landscape Architecture
Palimpsest
Heritage
Design
Voorburg
Forum Hadriani
Park Arentsburgh

Preface

This thesis's topic is the palimpsest of the Park Arentsburgh area in Voorburg. Palimpsest is one of four principles defined by the Landscape Architecture section at TU Delft, alongside Scale Continuum, Bodily Experience and Natural Processes. The Landscape Architecture Principles Lab has been established as a graduation studio to develop these concepts further.

Originally, a palimpsest refers to a piece of parchment on which writing has been superimposed over erased earlier texts. However, the old texts remain slightly visible, creating a layeredness of information. In the context of landscape architecture, it refers to the layered composition of sites shaped by historical, cultural and spatial processes over time.

Within this graduation lab, I am able to combine two fascinations, the historical development of my hometown Voorburg and the implementation of heritage within a landscape architectural design. This integration of historical research and spatial design has been a consistent focus throughout my master's at the TU Delft.

The goal of this research is to explore how heritage can serve as a guiding framework for spatial development. By doing so, it seeks to offer inspiration to the municipality of Leidschendam-Voorburg, within the rising pressure of the housing shortage, to strengthen the historic identity.

Julius Bram Knoester
Delft, June 9, 2025

Voor oma Gemma, die altijd vroeg hoe het met de opgravingen ging.

Chapter 01
Monumental Landscape

Site introduction and Problem Statement

1.1 Setting the Scene
Heritage management in the Netherlands

The Netherlands has a large amount of national monuments, approximately 63.000 are listed as of 2025 (Rijksoverheid, 2025). These are all protected under the 'Erfgoedwet'. During the last centuries, the relationship between heritage and spatial planning in the Netherlands has undergone significant evolution. Janssen, Luiten, Renes, and Stegmeijer (2017) created a framework for understanding this shift in describing heritage as a **Sector**, **Factor** or **Vector** within spatial development (Figure 1).

The idea of preserving valuable cultural heritage dates back to the late 19th century, when advocacy began for the preservation of historic buildings and sites.

After the second World War, the Dutch government established a basic legal framework to protect heritage. This resulted in the 'Monumentenwet' of 1961. This legislation formalized the conservation of individual buildings and townscapes. Heritage can be seen as a **Sector**, with planning aimed at preservation and isolation from spatial development.

In 1988, the 'Monumentenwet' was revised which expanded the scope of protection to include archaeological sites. The revision marked the shift from viewing heritage as isolated objects to recognizing it as part of broader spatial systems.

The 'Nota Belvedere' (1999) expanded further upon the integration of heritage into spatial planning. Within this view heritage can be seen as a **Factor**, here the monument could enhance spatial quality, guide redevelopment and stimulate urban regeneration.

In the 21st century, guided by the national policy document 'Kiezen voor Karakter', the focus shifted again, embracing a more layered and narrative-based approach. Heritage can be seen as a **Vector**, where spatial development connects past, present, and future. This approach emphasizes continuity, cultural biography and the potential of heritage to inform sustainable spatial development through storytelling and place identity. (Janssen et al, 2017)

The sector, factor and vector approaches coexist in practice and have not replaced eachother.

Protect heritage from spatial development

| Heritage | 19th century to now |

Spatial development

Heritage as a Sector

| Heritage | 1980 to now |

Spatial development

Heritage as a Factor

| Heritage | 2000 to now |

Spatial development

Heritage as a Vector
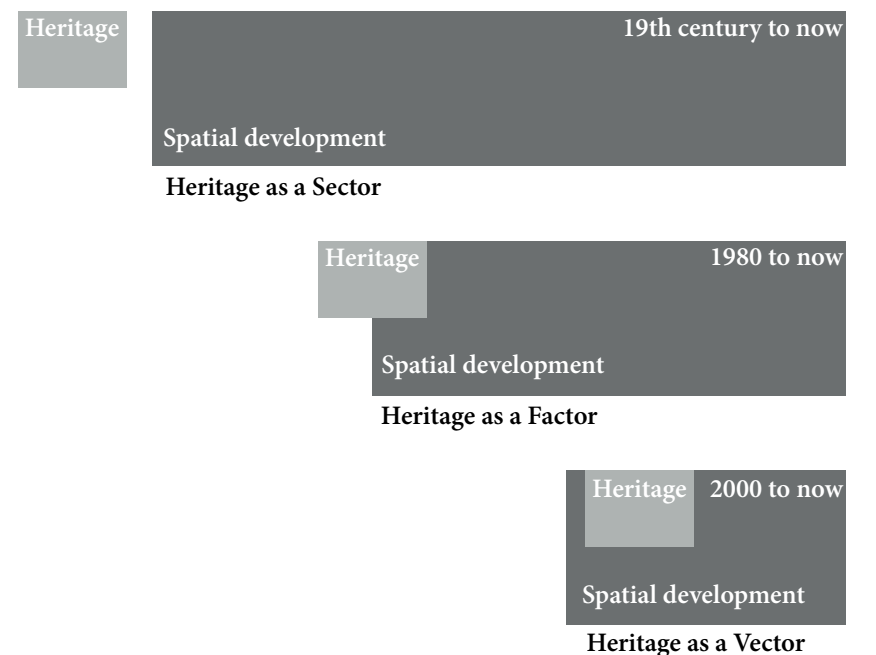
Heritage as a source of spatial value creation

Figure 1. Heritage as a Sector, Factor and Vector adapted from Janssen et al., (2017)

1.2 The park Arentsburgh area
Research Location

This thesis focuses on the park Arentsburgh area in Leidschendam-Voorburg (South Holland, the Netherlands) (Figure 2), situated on the border between the municipalities of Rijswijk and The Hague. The park is bordered by water on its southern and western edges, with the Vliet and Haagvliet canals respectively defining its boundaries (Figure 3).

Voorburg is situated on the oldest strandwal (former coastal dune ridge) of the Netherlands. A naturally elevated feature in the landscape, which are the first areas to be settled along the Dutch coast (Rijksdienst Cultureel Erfgoed, 2022). In Voorburg this has resulted in a relatively high population density of 6,851 inhabitants per square kilometre, compared to 2,403 inhabitants per square kilometre for the whole municipality (Centraal Bureau voor de Statistiek, 2023). With the planned development of the Binckhorst area, which will add 12,500 new housing units on approximately 1.5 square kilometre (Den Haag, 2025), the surroundings of the park Arentsburgh area will become even more densely populated.

Figure 4 examines the Park Arentsburgh area in more detail. The current use of the Park Arentsburgh area is fragmented, lacking cohesion and spatial connection. Park Arentsburgh (1-3), designed following the landscape style, is situated between a neighbourhood and a newer fenced luxury apartment complex 'Nieuw Hadriani' (4-5). An area of 2 hectares with around 100 allotment gardens (6) occupies the heart of the area. This space is fully enclosed by a tall hedge and fencing, effectively closing it from public access and further fragmenting the area. On the east side of the allotment gardens, a public healthcare zone (7-8) and the recently abandoned 'Diaconessenhuis' (9) are located. The area is dominated by paved surfaces, much of which is now underutilized. The main entrance (10) is at the north side, connecting to the Prinses Mariannelaan. It leads to an open field with a playground, but lacks strong connections to the rest of the area.

The Netherlands

Province of South Holland

Municipality of Leidschendam-Voorburg

Figure 2. Location of the Park Arentsburgh area
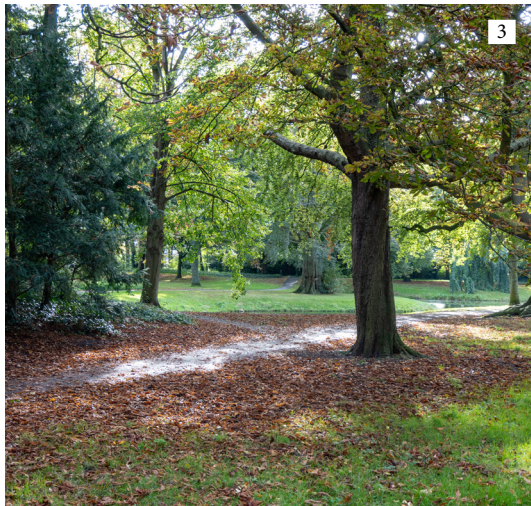

Figure 3. Context of the park Arentsburgh area
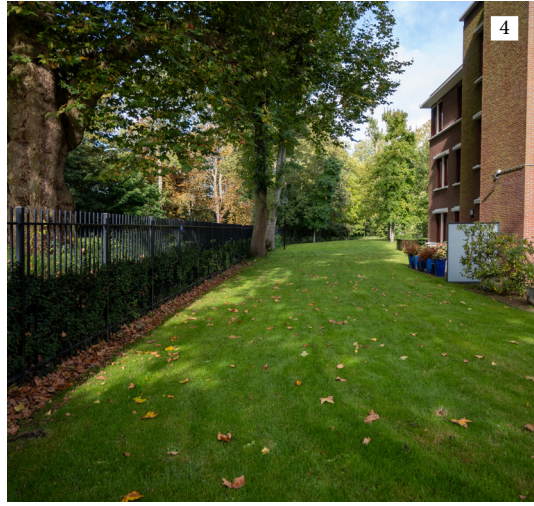
Figure 4. Photographic overview of the park Arentsburgh area

1.3 Monument Layers
A large gap in history

Although it may not be immediately apparent, the Park Arentsburgh area holds substantial historical and cultural value. The area contains a large number of monuments, including an archaeological UNESCO World Heritage Site (Figure 6).

These archaeological remains belong to Forum Hadriani, one of two (together with Nijmegen) Dutch cities in the former Roman Empire. The city thrived from around 70 AD to 272 AD but was quickly abandoned after that time. Because of high groundwater levels and a limited occupation in the centuries after the abandonement, the remains were preserved in very high quality (Buijtendorp, 2010).

The listed national monuments in the Park Arentsburgh area include the Hoekenburg and Arentsburgh estates, along with their associated park structures, dating from the 19th and early 20th centuries. However, this focus leaves a significant gap in the site's historical narrative. While stated before that the centuries following the Roman city of Forum Hadriani were relatively uneventful, this period extended to around the middle ages (Buijtendorp, 2010). Not recognizing that Hoekenburg and Arentsburgh, in their current form, are not the first estates to occupy this landscape. They are the successors of an earlier estate system that began to take shape in the 16th and 17th century.

As a result, the heritage layers of Park Arentsburgh appear discontinuous: early Roman and later estate developments are listed, while the centuries in between remain anonymous (Figure 5).

Figure 5. Timeline of Monuments

Figure 6. Monumental overview of the park Arentsburgh area

1.4 UNESCO World Heritage
Forum Hadriani

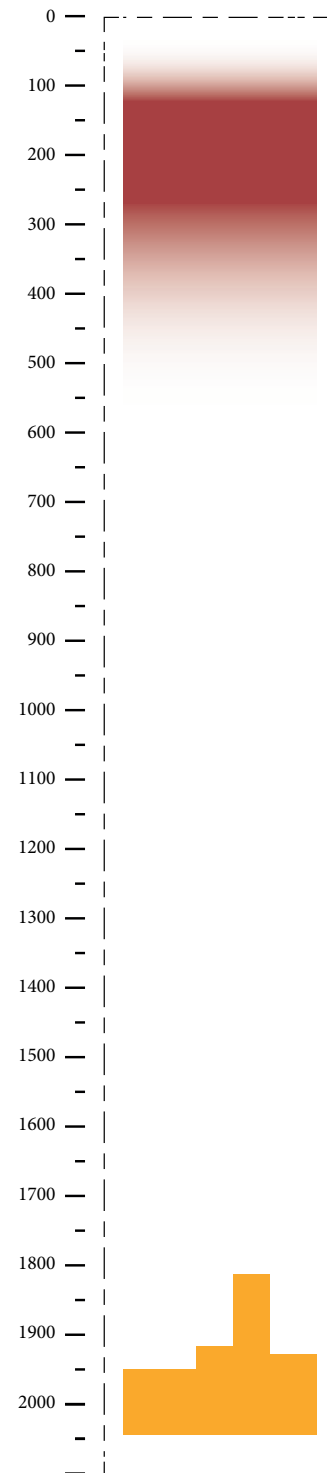The Roman archaeological remains of Forum Hadriani were listed as a national monument in 1998 (Driessen & Besselsen, 2014) after decades of neglect and building right over the former roman settlement. After the recognition as a monument small interventions were made to commemorate Forum Hadriani (Figure 7). Along the Prinses Mariannelaan an entrance has been made and on several streets the wall has been marked within the pavement. While inside the park a reconstruction has been made of an Roman milepost and several information columns are scattered.

Since 2021, Forum Hadriani has been UNESCO World Heritage as part of the Lower German Limes, the former Roman frontier along the Rhine from the 1st to the 5th century AD. The significance of the Lower German Limes lies in the exceptional preservation of archaeological remains, because of high groundwater levels, found in the region (UNESCO, n.d.) While UNESCO advocates for greater representation of archaeological heritage, no concrete plans exist for the park Arentsburgh area.

Entrance

Roman Mile Post

Information Column

Wall Demarcation

Figure 7. UNESCO World Heritage

16

1.5 National Monuments
Estate Complex Hoekenburg and Arentsburgh

The Arentsburgh and Hoekenburg estates, together with Arentsburgh Park and the garden wall, have been designated both as individual monuments and as components of a larger monumental ensemble (Figure 8), since 2001 (Rijksdienst Cultureel Erfgoed, n.d.). This reflects their individual historical value as well as their collective significance as a coherent historical complex. The ensemble holds an important place in the development of Voorburg, forming part of a historical sequence of estates along the Vliet canal and strandwal. However the original gardens

from that time have been lost and only a part of the garden wall and park design still reference the former estate gardens.

The spatial and functional relationship between the buildings and the landscape contributes to its character and historical depth. However, part of this coherence was compromised with the construction of the 'Nieuw Hadriani' apartment complexes in 2006, which disrupted the integrity of the ensemble after its official listing (Rijksdienst Cultureel Erfgoed, n.d.).

Park Arentsburgh 1927

Arentsburgh Estate 1912

Hoekenburg Estate 1809

Wall 17th and 19th century

Figure 8. National Monuments

17

1.6 Unrealised Potential

Despite the presence of multiple monument layers and significant archaeological value, the Park Arentsburgh area has historically received limited attention in terms of integrated spatial and heritage planning. The recognition of the archaeological remains of Forum Hadriani came relatively late, compared to other roman remains in the Netherlands. By that time, a sizeable amount of the area had already been built over,

Similarly, the cultural and spatial value of the existing estates has been diminished by recent urban development. The construction of the 'Nieuw Hadriani' apartment complex in 2006 disrupted the coherence of the estate ensemble, which is not aligned with any of the established heritage planning frameworks, understood through the lens of heritage as Sector, Factor or Vector. Which is the case for almost all spatial development, park Arentsburgh itself can be understood through the lens of heritage as Sector, a space largely isolated from spatial development, managed with limited interaction or reinterpretation. Meanwhile, small-scale interventions such as the placement of the information columns and reconstructed Roman elements reflect a more recent attempt to adopt a heritage as a Factor approach. However, this has been carried out in a relatively minimal way, lacking the spatial and narrative integration required for more impactful representation.

The upcoming redevelopment of the former Diaconessenhuis hospital site introduces a new phase of transformation (Figure 10). While this poses certain risks, it also presents an opportunity to integrate the heritage into the spatial future of the area. This transformation could extend to the whole park Arentsburgh area, offering a chance to improve the spatial quality and coherence. In doing so, the area as a whole can gain greater spatial and cultural significance.
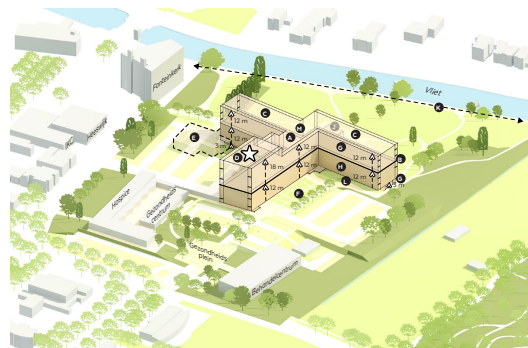

Figure 10. Diaconessenhuis Redevelopment by Mannen van Schuim (2022)

Figure 9. Heritage Documents

1.7 Problem Statement

Monument Representation

The Netherlands is characterized by a rich and multi-layered history, shaped by centuries of interaction between natural and human activity. This complex past has led to the protection of various heritage objects and sites over time. The 1961 'Monumenten Wet' was the first official heritage conservation law in the Netherlands and applied itself to individual monuments, disregarding the broader spatial and cultural context (Heritage as a Sector). In recent years, there has been a shift toward a more holistic approach to heritage conservation and representation, which seeks to embrace the full complexity of historical layers and contexts (Heritage as a Vector) (Rijksdienst Cultureel Erfgoed, 2011). While this approach offers new perspectives, it is not always seamlessly integrated with established conservation practices. As a result, many already-listed monuments remain bound by their status as monument, limiting their ability to adapt to the more holistic conservation and representation approaches.

Opportunity of park Arentsburgh

The park Arentsburgh area in Voorburg, a site of significant cultural value, exemplifies these heritage conservation and representation challenges. With a history spanning over 2000 years, including its status as an UNESCO World Heritage site and multiple listed national monuments, the park Arentsburgh area showcases an intricate historical layeredness. However developments and urbanization over the past century have disrupted or removed some (parts) of these layers and fragmented the area. The upcoming transformation of the 'Diaconessenhuis' area into an urban housing project presents a critical moment to rethink the integration and development of heritage of the whole site (Figure 11).

Figure 11. Redevelopment Area 'Diaconessenhuis'

Chapter 02
A Layered Approach towards Heritage
Research Framework

2.1 Research Outline

The history of landscape architecture is inextricably linked to the history of human thought. Originally, landscapes and gardens were designed according to the ideologies, worldviews, nature, and culture of the local community (Rogers, 2001). Landscapes change frequently and significantly because the culture of their inhabitants also evolves; thus, landscapes are shaped by the underlying ideas of society. However, these ideas themselves arise from a specific perception of the landscape.

When societal perceptions change, it becomes the responsibility of a landscape architect to reflect these changes in a design or to speculate on how these perceptions might evolve and how the designer can respond to them. This requires knowledge of previous periods, styles, and perspectives (Rogers, 2001).

As explained in chapter 01 there has been a significant shift in the way we look at and treat monument conservation and preservation, from only the protection of property to inclusion and representation of the historical, spatial and societal context.

This has led to the following **Main Research Question**:

"What landscape strategies can be developed and applied to visualise different layers of heritage above ground?"

To be able to answer the main research question, the research will be applied on the case of the park Arentsburgh area. Several sub-research questions have been formulated. These follow the research for design, research about design and research by design structure (Frankel & Racine, 2010).

1. Research for Design
Gathering insights to inform the design process.
"What are the defining historical layers of Park Arenstburgh and to what extent are these layers still represented?"

2. Research about Design
Extracting design methods in relevant cases.
"What are design strategies that can be used to represent archaeological and disappeared heritage?"

3. Research by Design
Testing insights and methods in a design.
"How can the design strategies be applied to the Park Arentsburgh area to facilitate an appropriate design?"

The historically layered park Arentsburgh area demands a renewed approach to address spatial challenges. The aim for the design is to create a framework rooted in the principle of **palimpsest**, in which heritage can act as a guide for future development and function. This study of the Palimpsest will be supported by two complementary theoretical lenses:

Landscape Biography
A theoretical and methodological approach that views the landscape not as a static object, but as a dynamic entity shaped continuously by human actions, perceptions and cultural meanings over time.

Academic Eclecticism
Design approach that does not hold rigidly towards a single paradigm, instead draws upon multiple insights of the historical design strategies and how to adapt this towards a design strategy that applies to the needs of the present.

2.2 Theoretical Framework

Landscape Architectural Principles

Landscape architectural designs that build on the existing structure of the landscape can support changing programmes, cultures and natural processes over time. This kind of spatial approach is essential for creating inclusive cities. TU Delft has defined four distinct principles (Bobbink & de Wit, 2020) through which the analysis and design of a landscape can be understood:

Palimpsest
Views landscape as a layered structure of past interventions, revealing historical traces and meanings to inform heritage-driven, site-specific design potential.

Scale Continuum
The interconnectedness of scales, viewing the site as a relational space where local interventions are embedded in broader contexts.

Natural Processes
Understanding and working with ecological systems (hydrology, biodiversity and human-nature interaction). Through open-ended design strategies creating conditions that guide these systems to develop further.

Bodily Experience
The experience of space as the core relationship between people and landscape, including visual, tactile, and spatial dimensions that influence its identity and accessibility.

Palimpsest

Although these four perspectives can be seen as interrelated and not mutually exclusive, this research adopts the lens of palimpsest as its primary analytical and design framework. This research aims to investigate the potential of a palimpsest approach to landscape analysis and design.

A palimpsest refers to a landscape in which multiple layers of human activity accumulate over time, each partially obscuring and affecting the ones beneath. Palimpsests are not bound to a specific site but each layer relates to different temporal depth, spatial reach and degree of visibility (Bailey, 2006). The role of palimpsest in landscape architecture as van Etteger (2015, p. 221) describes it: "The present plays a modest role, sandwiched between the weight of the past and opportunities for the future." Which fits with the Heritage as a Vector narrative outlined in the introduction.
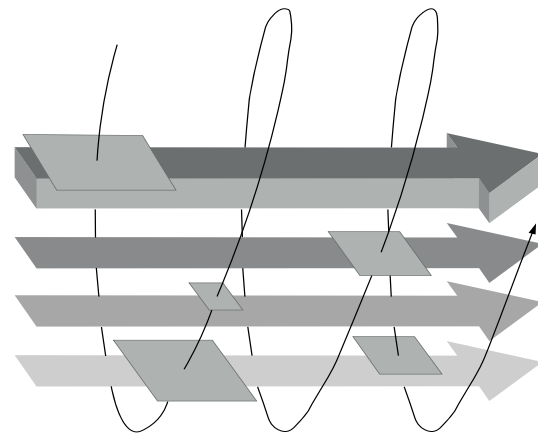

Figure 12. Landscape Architectural Principles Adapted from Junhui Zhang (2024) and Martijn Bisschops (2024)

Landscape Biography

To design with the concept of palimpsest, it is essential to analyse not only the physical layers of past interventions but also the underlying intentions, ideologies and materials that shaped them. Within this thesis the concept of Landscape Biography will be used, which analyses the layered history of a site by tracing landscape transformations and the cultural narratives within them. Such an approach draws from multiple disciplines including archaeology, geography, architecture and history, offering a framework for understanding how landscapes evolve (Kolen Renes, 2015).

Central to this analysis is the relation between Landscapes of Impression and Landscapes of Expression. A landscape of impression refers to the underlying cultural frameworks or ideologies through which people perceive and conceptualize landscape. This ultimately becomes the context in which landscapes are made. A landscape of expression is the materialized result of those impressions, made visible in the built environment (Samuels, 1979). This duality reinforces the importance of understanding not only what was built, but why it was conceived.
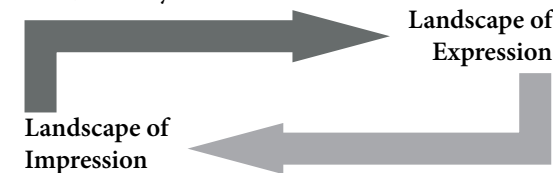

Figure 13. Landscape Biography

A complete reconstruction of a landscape's biography is unattainable, due to limited information such as a lack of documents or physical traces, or a combination of both. The result is a so called 'kaleidoscopic' biography (de Jong, 2015) which offers an interpretive approach that pieces together fragmented evidence to gain insight into past landscapes. Rather than aiming for a comprehensive narrative, the landscape biography in this thesis focuses specifically on the (landscape) design ideologies and their physical expressions, as well as the historical circumstances that informed and shaped them.

Academic Eclecticism

To adequately respond to the complex and layered conditions of the Park Arentsburgh area, this thesis adopts Academic Eclecticism as a design approach. Academic Eclecticism tries to reestablish a connection with the past. Rather than following a single paradigm, it draws from a deep understanding of multiple historical precedents and translates them into context-specific design strategies. Historical knowledge is essential, however Academic Eclecticism aims to move forward from the past, not stay in it (Longstreth, 1982).

"We are building for now. ... From the past, not in the past. We must return for the fire of life to other centuries, since a night has intervened . . . We must return, but we may not remain. It is the present that demands us." (Cram, 1901. as cited in Longstreth, 1982, p.58)

It values reinterpretation over replication, using history as a tool for innovation rather than purely as a source of decorative elements. In contrast to historicism, syncretism and eclecticism itself, academic eclecticism is not about combining styles at will, but about applying historical knowledge intelligently and contextually in a contemporary setting (Solà-Morales, 1987).

To ground this approach in practice, Academic Eclecticism can establish guiding strategies for design interventions and apply and combine within a landscape architectural design.
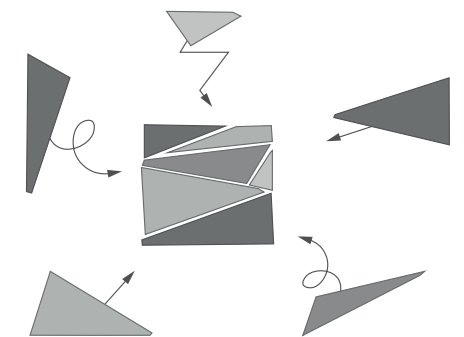

Figure 14. Academic Eclecticism

2.3 Landscape Architecture as Collage

Where palimpsest foregrounds the temporal layering inherent in landscapes and eclecticism legitimizes the coexistence of stylistic and cultural references, the concept of collage offers a concrete methodological bridge between these theoretical frameworks and the act of designing. As a method, collage enables the visualization and direct juxtaposition of different times, forms, scales and meanings within a single composition. In contrast to a linear reconstruction of the past or a stylistic unity, collage embraces the discontinuity and complexity that characterizes landscapes. In doing so, it offers a practical and visual translation of thinking in layers and serves as a design strategy through which landscape architecture can actively engage with a fragmented and stratified reality.

The Office for Metropolitan Architecture's (OMA) work serves as an example of this strategy, especially their partnership with landscape architect Yves Brunier, whose work gave the collage tangible shape. Brunier's collages purposefully manufactured contrasts rather than erasing them by fusing borrowed imagery, historical fragments, plant drawings and infrastructure overlays into intricate arrangements. The design for Rotterdam's Museumpark (1987–1993) (Figure X) is a prime example of this partnership and concept of collage. Brunier's collage-based design process did not attempt to unify these elements into a seamless whole. Instead, it amplified their differences, creating spatial and temporal contrasts that drew attention to the site's history and cultural heterogeneity (Nieuwe Instituut, n.d.). Using this perspective, Brunier's collaboration with OMA provides a convincing example of how collage may be interpreted as a vital design process that materializes the complex state of a layered landscape in addition to being an aesthetic gesture.
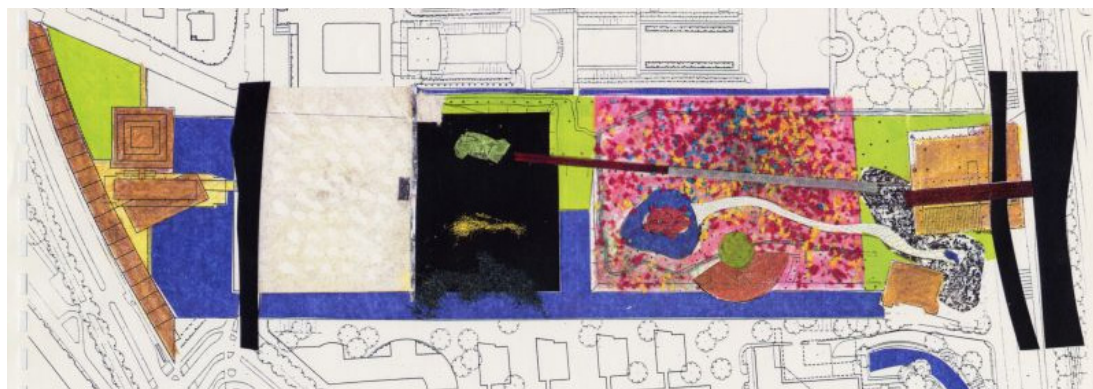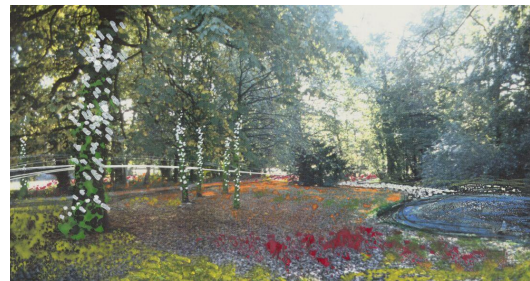
Figure 15. Museumpark By OMA and Yves Brunier

2.4 Methodology

The methodological structure of this thesis can be seen as the process of making such a collage.
A collage is a medium where many of the research's central focusses come together. A layered collection of different materials and influences working together in composition to tell one story. In the case of the park Arentsburgh area, the current landscape could be viewed as an unorganized stack of paper, with countless different stories stacked on top of each other.

By means of a 'kaleidoscopic' Landscape Biography, order is brought into the stack of paper and different layers can be defined, the palimpsest. These palimpsests all have their own temporal and spatial scale but fit together within the overarching story of the site. They can be seen as the inspiration for the landscape collage.
To apply this inspiration to the collage, guiding design strategies need to be extracted. These are formed by looking at how the different palimpsest layers are represented in the landscape currently.

Current Landscape
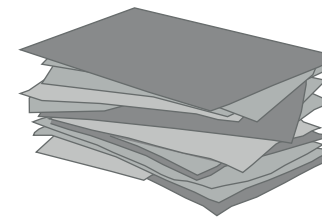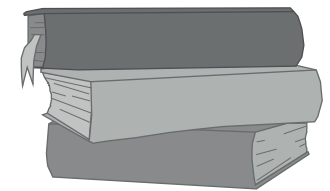
1. Research for Design
Gathering insights to inform the design process.
"What are the defining historical layers of Park Arenstburgh and to what extent are these layers still represented?"

Main Research Question
"What landscape strategies can be developed and applied to visualise different layers of heritage above ground?"

Palimpsest
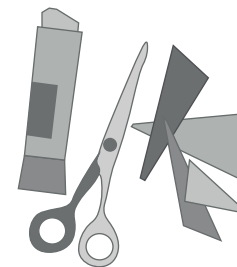
Design Strategies

2. Research about Design
Extracting design methods in relevant cases.
"What are design strategies that can be used to represent archaeological and disappeared heritage?"

Landscape Design
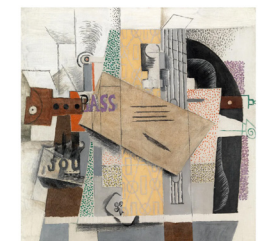
3. Research by Design
Testing insights and methods in a design.
"How can the design strategies be applied to the Park Arentsburgh area to facilitate an appropriate design?"

Figure 16. Methodological Framework

Chapter 03
Landscape Biography
A Landscape Biography of the Park Arentsburgh Area

3.1 Starting/Shaping Conditions
Period until year 0

The geomorphological conditions played a large part in the development of the park Arentsburgh area. After the last ice age, the region beca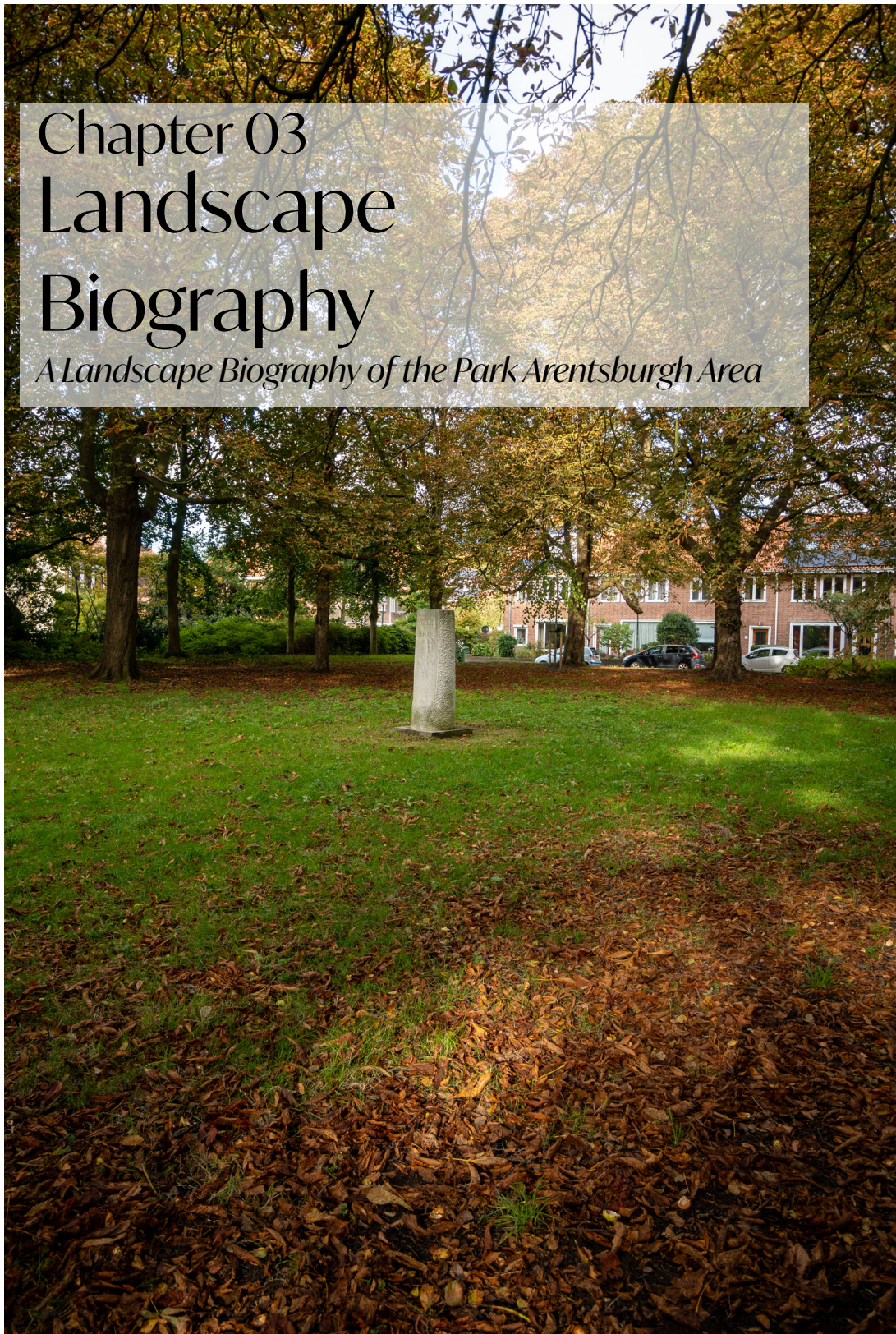me part of a dynamic tidal landscape because of the rising sea level. Characterized by clay and sandbanks, as well as a network of tidal channels. Around 4500 years ago, the geomorphological structure of the coastal zone changed substantially with the formation of a continuous strandwal system (Figure 17). These dunes ran parallel to the sea and reduced the tidal influence on the land behind, creating a more stable and habitable environment (Atlas Leefomgeving, n.d.). Extensive peat formation began in the lower-lying areas, making much of the inland landscape inaccessible. In contrast, the strandwallen remained relatively high and dry, forming natural elevated zones that were both strategically and practically advantageous for early settlement, even more so because of the fertile soils surrounding the strandwallen.

These conditions made the strandwallen particularly attractive for habitation (Raap, Brinkkemper & Baas, 2022). The Cananefates, the first major tribe to settle in the region. The settlements consist of small selfsufficient farms on the dry elevated terrain of the strandwal, there are not yet any larger cities or settlements present.
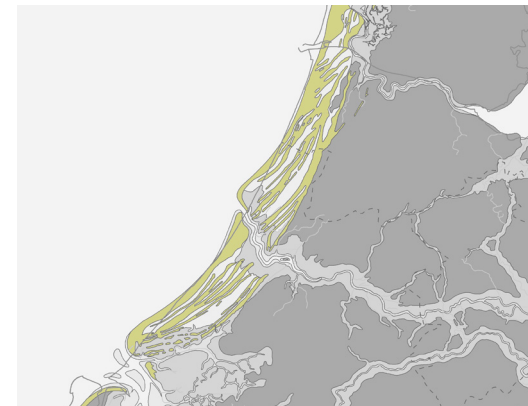

Figure 17. Strandwal Landscape

3.2 Romans in the Netherlands

Figure 18. Roman Settlements in the Netherlands

The Lower German Limes formed the northern frontier of the Roman Empire in what is now the Netherlands and western Germany, situated along the course of the River Rhine. Rather than a fixed wall, it was a dynamic border zone, structured by a network of forts, roads and settlements where Roman and local cultures interacted (Figure 18). During the Roman occupation of the Netherlands, only two settlements were granted the status of a Roman city: Ulpia Noviomagus Batavorum (modern-day Nijmegen), a key military and administrative centre, and Forum Hadriani (modern-day Voorburg), a flourishing civilian town located in the current park Arentsburgh area.

Under Emperor Hadrian, who ruled from 117 to 138 AD, the Roman approach to this frontier shifted fundamentally. In contrast to previous Emperor Trajan, who focused on expanding the empire, Hadrian chose to consolidate and secure existing territories. This change in mindset was driven by the growing difficulty of managing distant conquests, the high cost and failure of campaigns in Germania and the need to strengthen internal stability. Along the Lower German Limes, this resulted in the standardization of military architecture and the reinforcement of infrastructural connections such as roads and canals. Hadrian's strategy transformed the frontier into a stabilized and controlled zone (Buijtendorp 2010).

From the third to the fifth century, the Roman Empire started to struggle and slowly retreat from Germania Inferior. During the third century civil wars between rival military emperors severely undermined imperial stability. As the defence system along the Limes weakened, Germanic tribes increasingly crossed the Rhine to raid Roman territory. Renewed fortification efforts in the fourth century failed to restore lasting control. Internal struggles in the Roman Empire continued to draw resources away from the northern provinces, leaving them exposed for infiltration (Roemer, n.d.). By the mid-fifth century, Roman administration in Germania Inferior (official name in this period Germania Secunda) collapsed. The whole province was ultimately abandoned at the end of the fifth century, leaving behind the ruins of what once was a powerful frontier in the north.

3.3 Market of the Emperor

Around 47 AD the Fossa Corbulonis (Canal of Corbulo) was constructed to connect the Rhine and Meuse rivers. This canal improved military mobility and trade in the frontier zone. A settlement of the Cananefates was located along this canal and transitioned into a logistical hub that started growing in size.

After the batavian revolt and the introduction of Germania Inferior as a province, the settlement near the Corbulo Canal grew in importance, developing into a regional hub for governance (Buijtendorp 2010).

In 121 AD, Emperor Hadrian visited the settlement and granted it market rights, he initiated its transformation into a formally planned Roman city: Forum Hadriani. The city was laid out according to classical Roman urban principles, reflecting Hadrian's emphasis on order, infrastructure, and symbolic unity across the empire. A strict orthogonal street grid was implemented, with two main axes, the cardo maximus (north-south) and decumanus maximus (east-west), structuring the city's layout. These streets defined a series of rectangular insulae, or urban blocks. At the heart of the city, a central forum served as the civic and commercial core, surrounded by other insulae with some administrative buildings and temples, but primarily residential structures complete with private gardens (de Jonge, Bazelmans & de Jager, 2006). Forum Hadriani can be described as 'an ordinary' Roman city, with only around a thousand inhabitants (Buijtendorp, 2022).

The development of Forum Hadriani was a deliberate statement by Hadrian. By laying out a fully equipped Roman city in a remote province, Hadrian made his vision of an interconnected and equal empire, where the periphery reflected the standards of Rome itself.
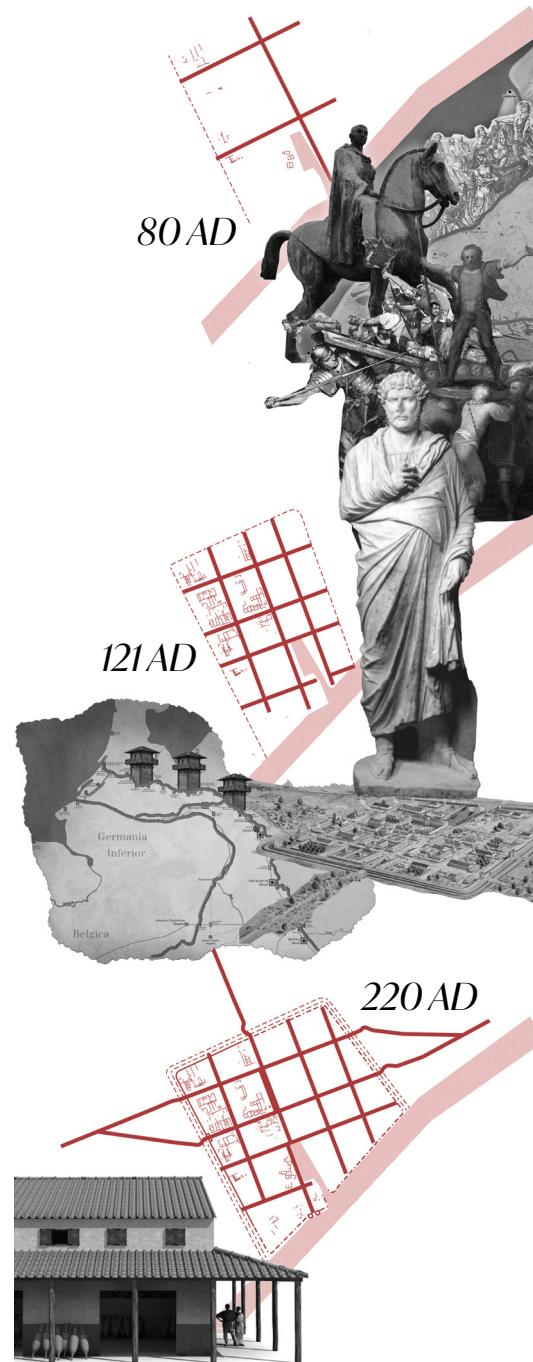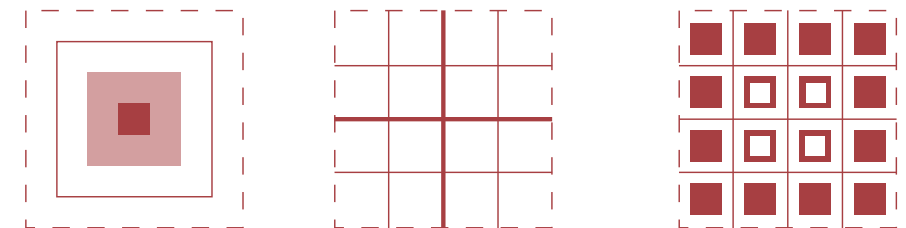

80 AD

121 AD

220 AD

Figure 19. Timeline Forum Hadriani

Figure 20. Forum Hadriani

3.4 An Escape from the City

The centuries following the Roman occupation were quiet, there was little habitation and forest growth took over the area. The Canal of Corbulo had disappeared mostly from the landscape due to the formation of peat (Buijtendorp, 2010). It was in the early Middle Ages that the strandwal became inhabited again. Farms started developing on the higher grounds and with that came a new parcellation structure of ditches marked with treelines (SB4, 2000). The Dutch economy started to flourish and there was a need for a better connection between the growing cities of Delft, The Hague and Leiden. In 1636, the Vliet canal was dug deeper between Delft and Leiden, where the surface was already at its lowest, following for the most part the old course of the Canal of Corbulo (Historische Vereniging Voorburg, 2018). Later, The Hague was connected to the Vliet with the Haagvliet, which intersected each other right at the park Arentsburgh area. This connection became the busiest public transport route of Holland, with a trekschuit, a vessel pulled forward by horses on a jaagpad, leaving every half hour (Panman, n.d.). Shortly after these new connections, the first estates started appearing along the Vliet and strandwal. In the 17th and 18th centuries, a strip of more than a hundred estates formed from Rijswijk to Leidschendam (SB4, 2000). In the golden age, new wealthy elites, often merchants, bought and constructed these estates and gardens to show their enhanced social status and escape from their busy lives in the city.

Often, the estates were built on the foundations of farms and their gardens followed the parcellation structure of the agricultural grounds(SB4, 2000). The fertile soils were very well suited for the high-maintenance decorative orthogonal gardens. With this control over nature, the estate owners wanted to show off their newfound dominance and wealth (Historische Vereniging Rijswijk, n.d.).

3.5 Estate Zone along the Vliet

The Hoekenburg, Arentsburgh, and Heeswijk estates are located within the Park Arentsburgh area. The estate houses are situated along the Vliet, providing close access to the water, with gardens extending towards the Agterrijwegh, now known as Prinses Mariannelaan. The estates are connected by a long road lined with trees. For Arentsburgh and Heeswijk, this road leads directly to the estates, whereas Hoekenburg reflects an older layout in which the house is not centrally positioned within the garden (SB4, 2000). When the estates were first established, they were situated on former farmland. Hedged ornamental gardens (siertuinen) were located immediately around the estate buildings, while orthogonal kitchen gardens (nutstuinen), complemented with orchards, extended outward from the house (Groen Erfgoedzorg, n.d.).

Arentsburgh and Heeswijk expanded significantly over time. In their early phases, the gardens followed a formal layout structured along a central axis aligned with the middle of the house, dividing the space symmetrically. These gardens exhibited harmonious proportions and a sense of enclosure, defined by high hedges and tree-lined paths, and were composed of geometric hedge parterres. As the designs evolved, they became more expansive and ornamental. The central axis was extended into the surrounding landscape through long avenues, and the gardens took on more expressive forms with curving patterns, flowering plants, and ornamental woodland. This development is particularly evident in the northern section of the Heeswijk garden (Historische Vereniging Voorburg, 2018).

1500

1650

1712

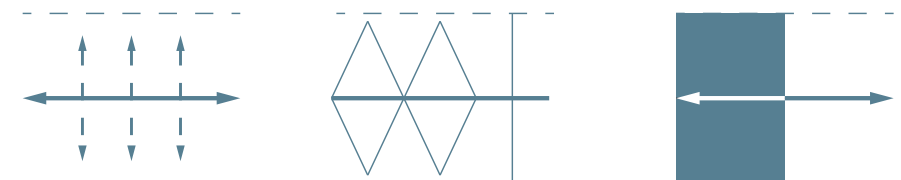Figure 22. Timeline Estates

HEESWIJK

ARENTSBURGH

HOEKENBURG

Figure 23. Estates Hoekenburg, Arentsburgh and Heeswijk

3.6 Urban Expansion

PARK ARENTSBURGH AREA

Figure 24. Urban Development Voorburg

After the flourishing Golden Ages, the Netherlands entered a period of financial hardship and gradual political decline. Economic stagnation set in, while growing internal tensions and external pressures undermined the stability that had once supported its rise. The maintenance costs of estates and their gardens became too much of a burden. As a result, and under the influence of Romanticism, the gardens transitioned into landscape-style gardens with less demanding upkeep (Gemeente Stichtse Vecht, 2024). Other estates were demolished or sold to serve a more public function. The development of the area outweighed the importance of the estates, as exemplified by the railway and highway cutting directly through the garden of the Hofwijck estate.

As the population of The Hague increased rapidly in the twentieth century, part of the pressure was absorbed by neighbouring Voorburg, particularly during the 1920s and 1930s (Geschiedenis Van Zuid-Holland, n.d.). Urban expansion plans were drawn up along the strandwal, gradually transforming Voorburg from an estate landscape into the denser residential area it is today. The estates Hoekenburg, Arentsburgh, Middenburg and Vreugd en Rust were acquired by the municipality to accommodate this development. Their gardens were repurposed as public parks, integrated into the new neighbourhoods as accessible green space within the growing urban fabric.

3.7 Archaeological Confusion

In 1784 the new owners of the Hoekenburg estate sold the land of the entrance lane, creating a new access on the southwest side. The former agricultural fields that were there were transformed into a garden following the early landscape style (SB4, 2000). The garden style opposed the previous and included winding paths, gentle elevation changes, tree clumps and streams. The design emphasized enclosure, small scale and carefully framed sightlines within the garden (Groen Erfgoedzorg, n.d.).

After a large bronze hand and other seemingly Roman traces were found in 1771, the Arentsburgh estate became the suspected location of Forum Hadriani. Archaeologist Caspar Reuvens acquired the grounds of the Arentsburgh estate and conducted the first scientific archaeological excavations there. Between 1827 and 1834, he carried out extensive excavations in the estate's garden, leading to its complete removal. Reuvens concluded that the remains belonged to Forum Hadriani, but he passed away before he could publish his findings definitively, leaving a sense of uncertainty (Buijtendorp, 2010).

The excavated area was filled, raising the groundlevel. A new garden was laid out in the late landscape style. While building on the principles of the earlier style, this later approach emphasized greater openness, with broader meadows, wider curves, larger water features, and extended sightlines that connected the garden to its wider surroundings (Groen Erfgoedzorg, n.d.). The same happened to the garden of the Heeswijk estate, however it remained privately owned.

Concerned about the rapid expansion of The Hague, archaeologists Holwerda and Van Giffen launched new excavations in 1909 to reinforce the significance of Reuvens' earlier findings and argue for their protection. While the initial results of the excavation seemed promising, by the end of the campaign, Holwerda falsely concluded the site was merely a Roman fleet station (Buijtendorp, 2010). This re-interpretation cleared the way for urban development, plans were made for a residential neighbourhood directly over the archaeological remains. In preparation, much of the land was restructured, ditches were filled in, erasing the parcelation structure and gardens were made public to serve as parks.

1834

"De ruïnen van de eerste stad van enige afmeting en beteekenis die ooit in onze streken werd gebouwd, liggen daar nog in den grond
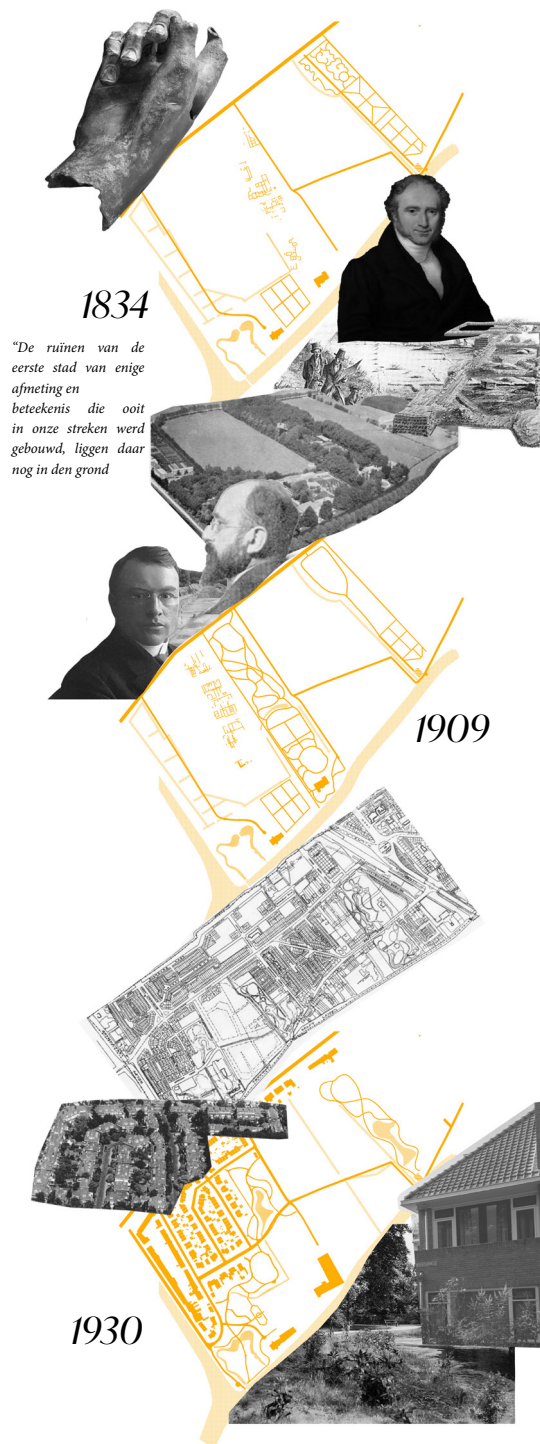
1909

1930

Figure 25. Timeline Urban Expansion

Figure 26. Urban Expansion with new Landscape Style Park

3.8 Erasing History

During the development of the new neighbourhood, the Hoekenburg and Arentsburgh estates transitioned from private residences to Effatha, an institute and school for deaf and mute children. This institution rapidly expanded, going from occupying only the estate buildings to forming an entire campus that greatly intervened across the former estate garden, enclosed by existing ditches and garden walls.

Urban development came to a halt due to the Second World War, leaving a large field undeveloped (indicated in red in Figure 26). This area remained largely vacant, apart from the deteriorating Heeswijk estate. Instead of continuing the originally planned housing development, the Diaconessenhuis hospital and the Fonteinkerk church were constructed, necessitating the complete removal of the estate (Mannen van Schuim, 2022). Before the hospital's construction, the ground level was artificially raised, severely disrupting the soil layers and resulting in a height difference of nearly three metres compared to the surrounding terrain (Buijtendorp, 2010). In a neighbouring field, which also remained undeveloped, allotment gardens were established. Creating a border between Effatha and the Diaconessenhuis.

Subsequently, a breakthrough in archaeological understanding occurred. Jules Bogaers reinterpreted earlier findings and concluded that the ancient Roman city of Forum Hadriani was in fact located in the Arentsburgh park area, nearly two thousand years after its original founding.

Around the year 2000, Effatha vacated the site and all associated buildings were demolished. Plans emerged for a luxury residential development, Nieuw Hadriani, which aimed to preserve the Roman traces by building on the foundations of the former Effatha structures.
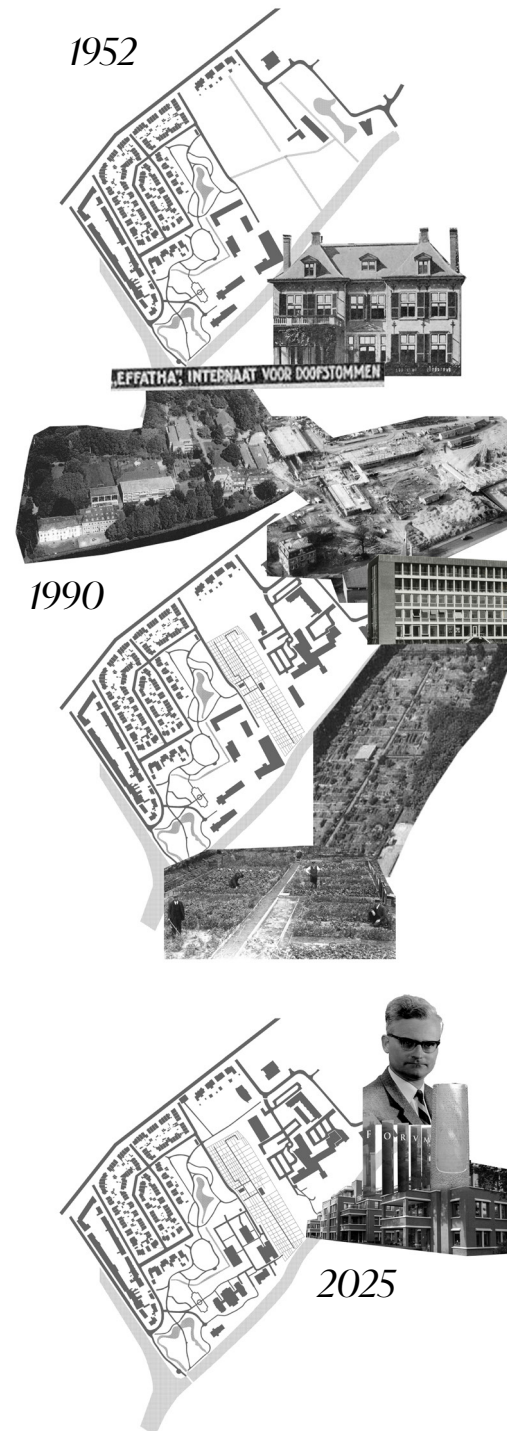

Figure 27. Timeline

Figure 28. Current Situation park Arentsburgh area

3.9 Heritage Typologies

Looking at the development of the Park Arentsburgh area and how its historical layers are revealed throughout this landscape biography, a layered narrative of **Hidden**, **Lost** and **Damaged Heritage** emerges. These categories, though analytically distinct, are embedded in the physical and/or cultural landscape of the site, shaping not only its past but also curreant condition and potential future. Recognising these different forms of heritage allows for a more nuanced and responsible approach to their representation within landscape design.

Hidden Heritage
The Roman remains of Forum Hadriani are classified as Hidden Heritage. Although no longer visible on the surface, they are still present beneath the soil, preserved as archaeological traces embedded in the subsurface landscape.

Lost Heritage
The estate landscape of the 17th and 18th centuries is classified as Lost Heritage. The estates and their formal gardens have been entirely removed and replaced, very little physical evidence of this historical layer remains in the current landscape. Only the ditches and driveway of Park Arentsburgh remain.

Damaged Heritage
The landscape parks can be classified as Damaged Heritage. Over time, transformations, such as Nieuw Hadriani, have altered their original design composition. As a result, their spatial coherence and historical integrity have been significantly diminished.

Transcending the Layers
When overlapping the seperate layers, three areas correspond through the different timescales. There has always been a connection to the southern waterway, whether the Corbulo Canal or the Vliet. An east–west link follows the Roman main road and later served as a smaller route between estates and parks. The third is an access point on the Prinses Mariannelaan, once a Roman gate and estate driveway, which is still present.
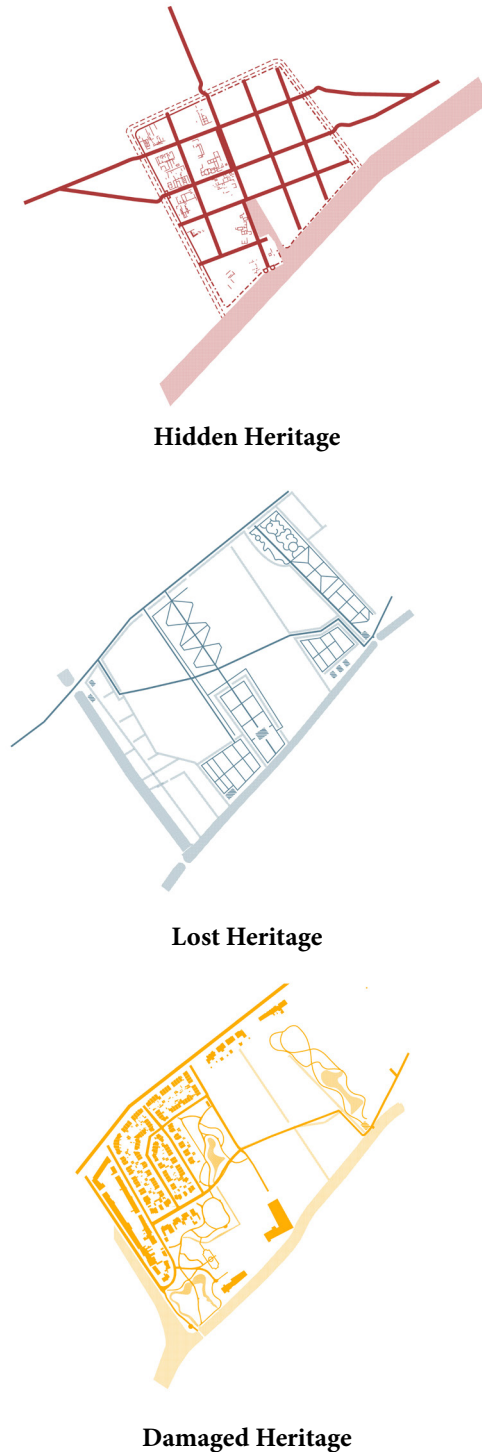
Hidden Heritage

Lost Heritage
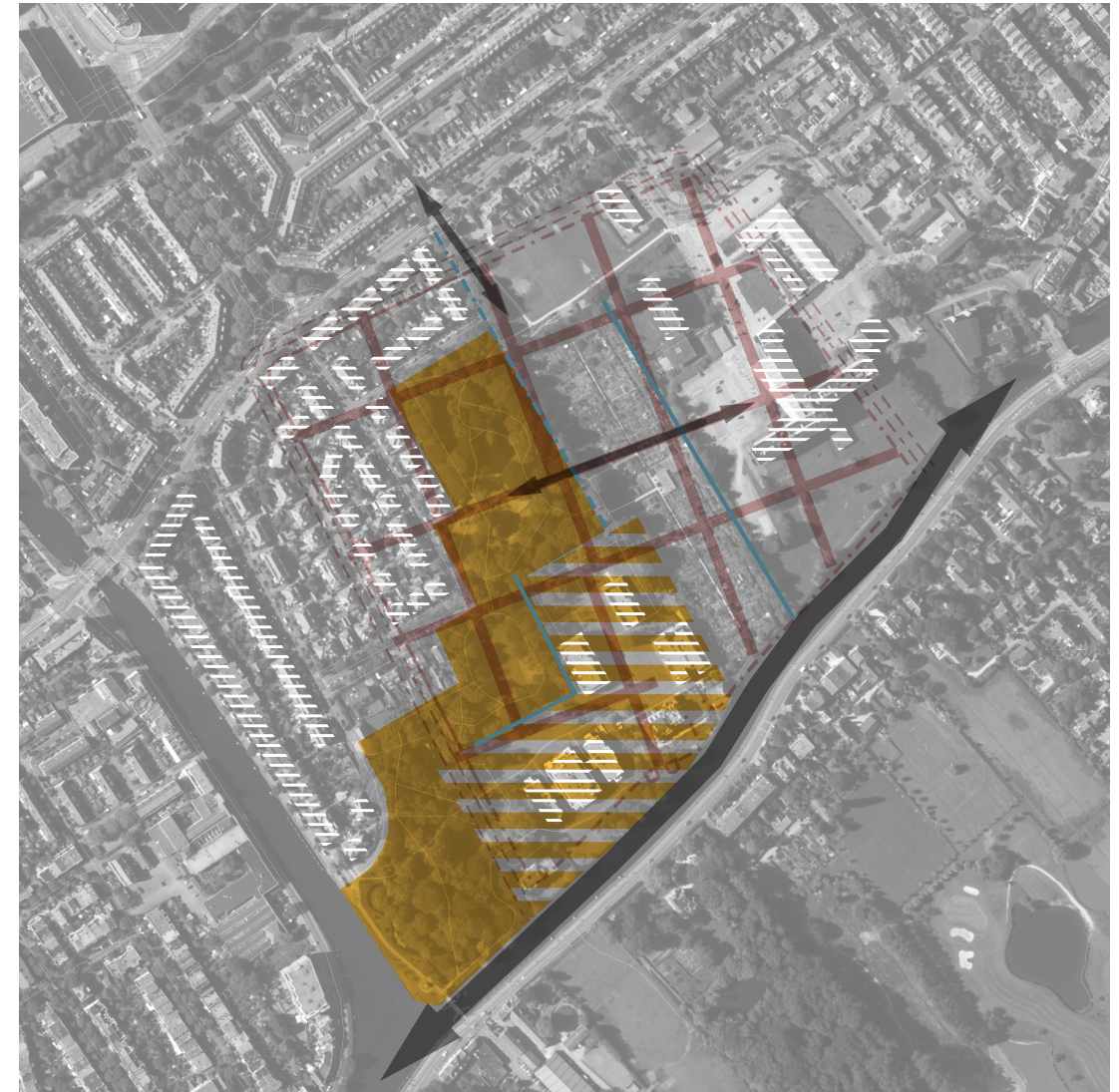
Damaged Heritage

Figure 29. Heritage Typologies

Figure 30. Palimpsest of Park Arentsburg

Chapter 04
Strategies for a Layered Landscape
Design Strategies for different types of Heritage

4.1 The Larger Scale

Building on the previously defined types of heritage, Hidden, Lost and Damaged, strategies need to be formulated on how to design with them. No design exists on its own, it builds upon existing precedents. In this case, the focus shifts toward the larger spatial frameworks in which these heritage types are situated, as identified in the landscape biography:

Hidden Heritage
The Lower German Limes, the Roman defense zone along the Old Rhine (Figure 31).

Lost Heritage
The 'Vlietzone' estate zone that spans from Rijswijk to Voorburg along the strandwal and the Vliet canal (Figure 32).

Damaged Heritage
Landscape style parks in Voorburg (Figure 33).

In addition to the exploration of these scale relationships, other relevant precedents will be examined in order to further enhance the academic depth of the study. Understanding how each layer of heritage is represented at a larger scale allows for the formulation of strategies that are both context-specific and layer specific. These design strategies could provide a base through which the layered history of the Arentsburgh area can be represented and reinterpreted in design.
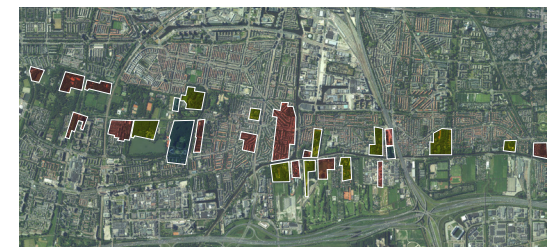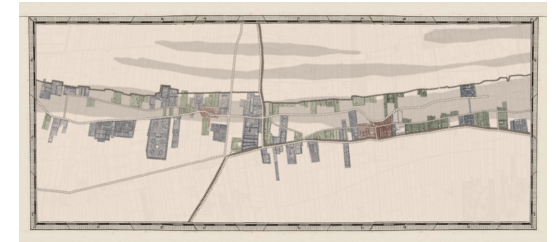

Figure 31. The Lower German Limes
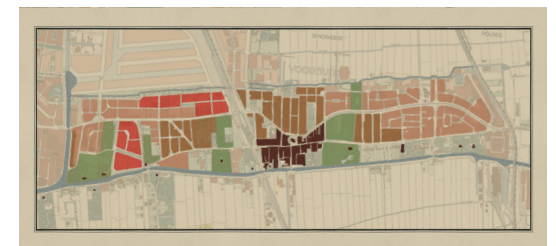

Figure 32. The 'Vlietzone' estate zone

Figure 33. Landscape style parks in Voorburg

4.2 Lower German Limes
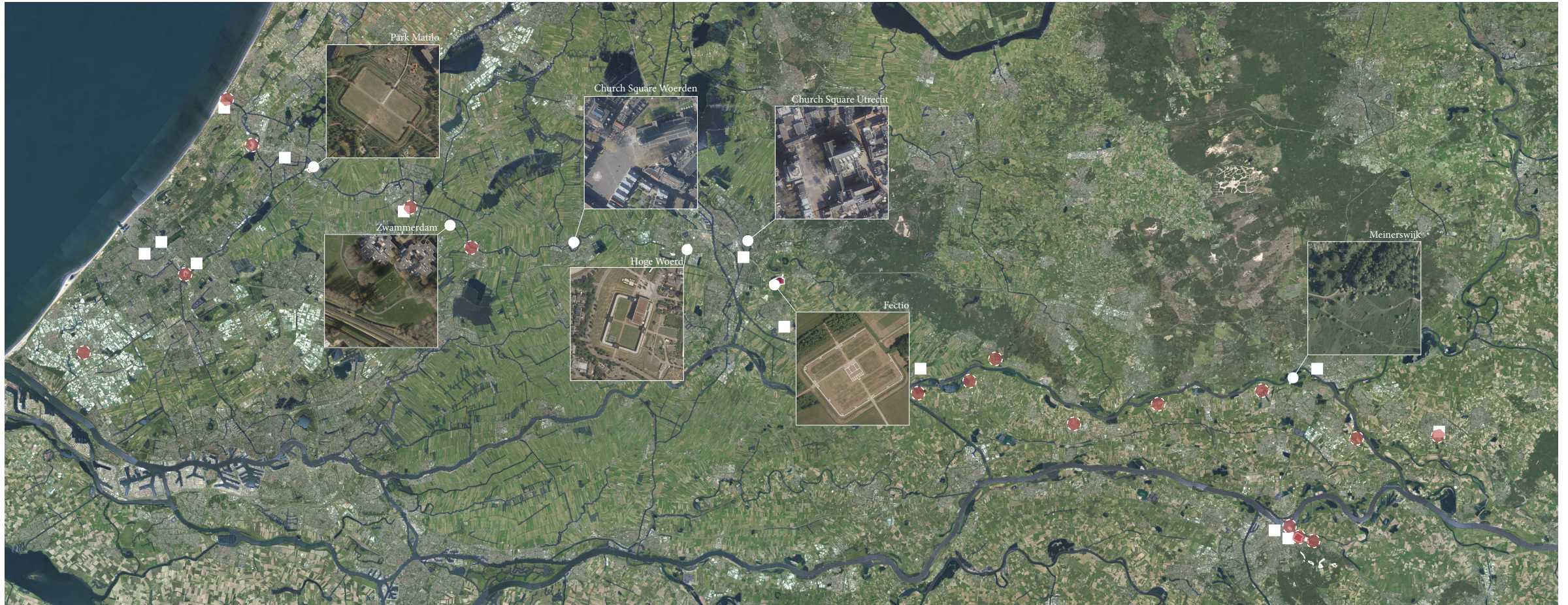*Re-Introducing Hidden Heritage*

Figure 34. Current state of the Lower German Limes

As the importance of Roman archaeological findings grew at the end of the 20th century, exemplified by listings as national monuments. This protection means that, until more advanced archaeological techniques become available, the remains will stay concealed underground, preserved in situ (Rijksdienst Cultureel Erfgoed, 2021). The significance of the Lower German Limes became even more valued when it was listed as UNESCO World Heritage site, with UNESCO striving for more on site information and presentation (Leene & Berger, 2021). To be able to show and share and inform reconstructions and reinterpretations of the Roman heritage have been made.

Figure X provides an overview of which Limes sites have been reconstructed and in what way. It reveals that at a considerable number of sites, including Forum Hadriani, a landscape reference is still missing. The figure also demonstrates the variety of representational forms that Limes sites can take. This research focuses on the locations where a landscape reference has already been realised, aiming to analyse and synthesise the design strategies applied. These strategies will serve as guidance for future interventions addressing Hidden Heritage.

4.3 Hidden Heritage

In dense, historically layered urban environments, physical space is limited and the visibility of archaeological remains is often constrained. Here, the Roman presence is typically expressed through subtle interventions: graphic markings or subtle differences in materials (Visser et al., 2015). For example, on both the 'Kerkplein' in Woerden and the 'Domplein' in Utrecht (Figure 35), the borders of the former fortifications have been materialised within the paving, respectively with a granite strip, with information carved into separate slabs in Woerden and a metal strip in Utrecht telling the story of the Limes. Due to the urban context these strips are not a continuous line but still form a whole because the materialisation stays the same within the otherwise busy context. The challenge in this saturated and visually complex public context is to create a clear and visible image through a minute intervention.

Suburban areas, particularly those undergoing spatial transformation, offer more flexibility for physical representation. In places such as Park Matilo, Hoge Woerd and Archaeological Park Xanten, the Roman past has been reintroduced through larger spatial interventions (Figure 36), really bringing back the scale and reference the size of the roman fortresses. Physical elements like walls and ditches are emphasized by dikes or walls. The original layout structure is brought back highlighting the roads with trees or materialisation. These interventions often allow for other functions to develop around it, while keeping the Roman structure visible. The suburban context allows for hybrid typologies that integrate heritage, public space and urban development.

In open landscapes, the Limes can be reimagined at the scale of the landscape. Locations such as Fectio, Meinerswijk or near Zwammerdam (Figure 37). The focus is more on the structure within the fortification, highlighting the position and layout of buildings. This is done by following the foundations, leading to a more fragmented plan than a whole building. The borders are still visualised, just done to highlight the extent of the fortifications, instead of experiencing the transition from inside to out.

Figure 35. Reinterpretation of Roman Borders in the City

Figure 36. Modern adaptation of Roman Forts

Figure 37. Roman represtentaton in the Open Landscape

Hidden Heritage strategies

In all three spatial contexts, the form of representation differs, yet underlying design strategies for **Hidden Heritage** remain consistent. These strategies include:

1. Emphasising the original scale
2. Highlighting underlying spatial structures
3. Reinterpreting historical elements through the use of new materials

Together, they provide a flexible but coherent framework for translating the Roman Limes into the present-day landscape.
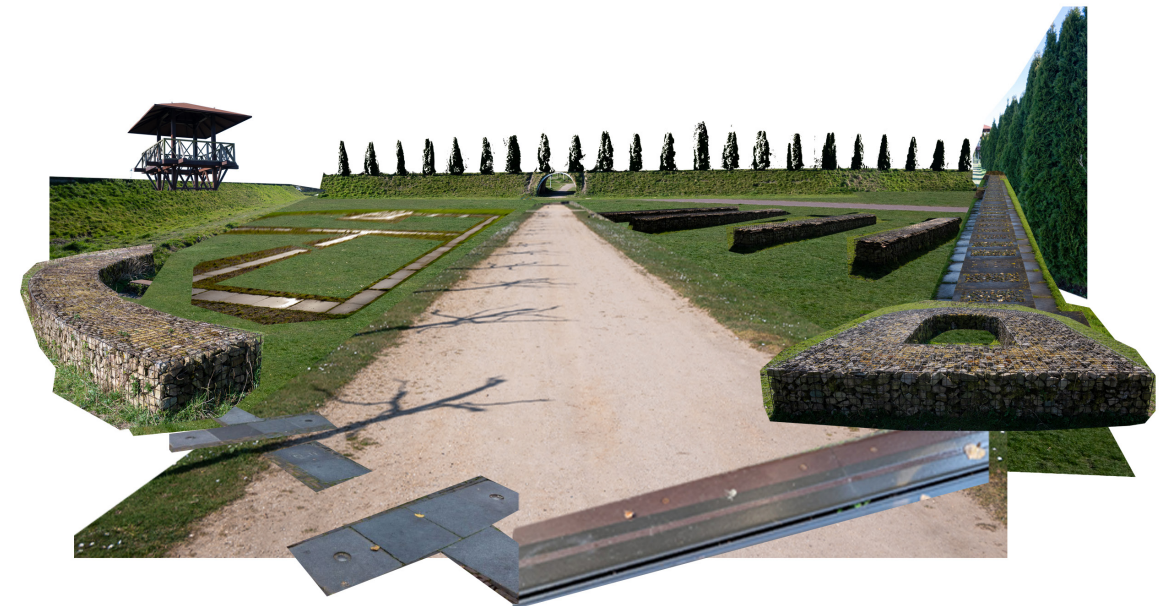

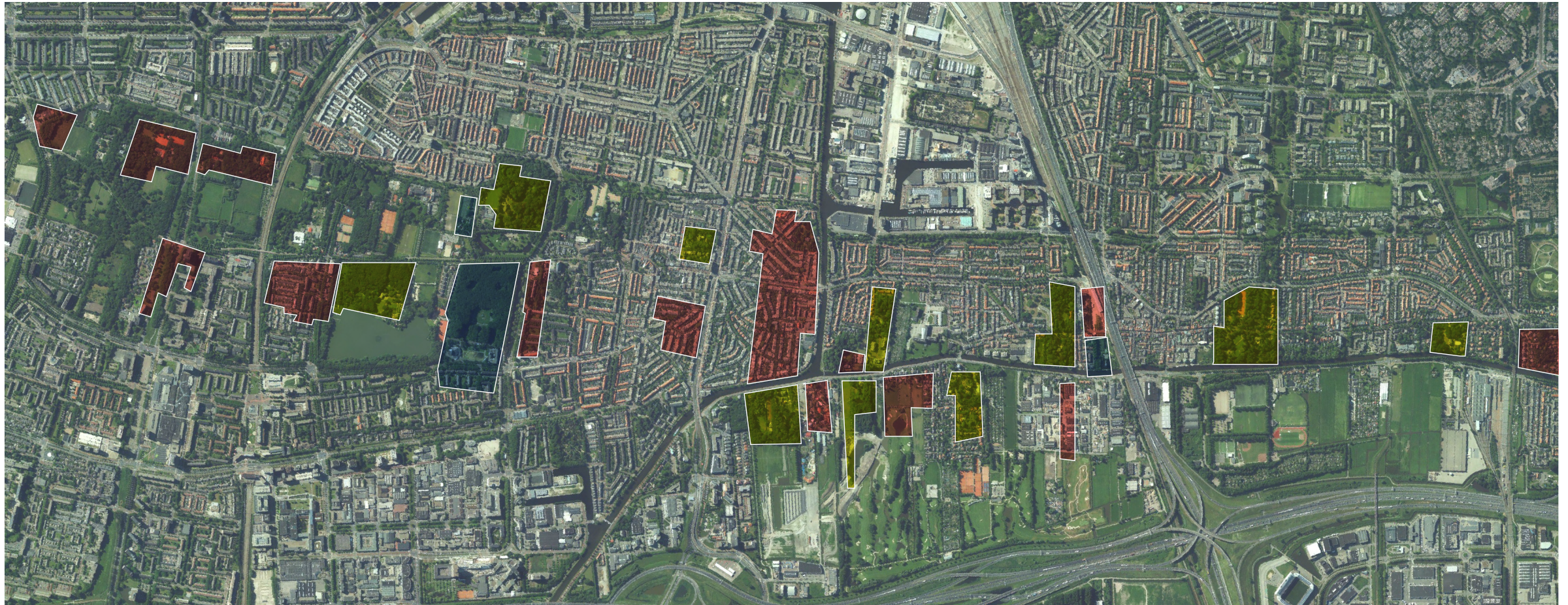Figure 38. Design Strategies Hidden Heritage

4.4 Vlietzone

As explained in Chapter 3, there is not much left of the original estate landscape of the 'Vlietzone'. Most estates have been replaced, their gardens altered, gotten a new function or even been destroyed completely (figure X). Still 'Vlietzone' is listed by the Province of South Holland as a landscape biotope with important landscape and cultural historic values (Verschuure-Stuip, 2015). This status actively protects the surroundings of estates and guide spatial developments.

In the 'Vlietzone', the biotope highlights both visual and physical relationships that define the historic estate landscape. Features like treelines, parcellation structure, roads and waterways reinforce the area's identity as a historic estate zone (Provincie Zuid Holland, n.d.). What becomes apparent is that the parcelation structure of the former estates is still reasonably embedded in the landscape. However the ensemble of Estate and Garden is almost completely lost. How this current estate landscape is embedded will be the starting point for extracting guiding design strategies for the Lost Heritage layer.

4.5 Lost Heritage

Most estates have disappeared from the landscape. However, traces of these lost estates can still be found around the borders of the former land they once occupied. This is due to the estates following the parcellation structure, with features like ditches and treelines, often serving as the foundation for later urban development. Additionally, in estates transformed into landscape parks, the former driveway is sometimes still marked by a treeline, a remnant of the original estate landscape. While the trees are no longer the originals, the species, mostly Linden, Beech, Plane and Oak, are likely the same as those present in the seventeenth and eighteenth centuries (Historische Vereniging Voorburg, 2018).

A more recent trend involves the reconstruction of lost estate gardens, often based on detailed historical maps created during their original development. In the Vlietzone, the reconstruction of Hofwijck's estate garden in Voorburg stands out as a notable example. This project guided by Constantijn Huygens' original 1640 design, which was inspired by Vitruvius's architectural principles emphasizing the harmony of the human form. The garden of Hofwijck has been partially reconstructed due to the presence of a highway and train station. Where restoration has occurred, the design follows the original layout, featuring orthogonal pathways and former orchards. However, the function of the estate has shifted from a private residence to a museum (Huygens Museum, n.d.).

Other examples of such redevelopment, outside of the Vlietzone, are the Trompenburgh and De Tempel estates. Karres en Brands' plan for Buitenplaats Trompenburgh in 's-Graveland focuses on the bringing back the 17th-century park-garden, using it as the backbone for the garden structure, based on old maps, while preserving the existing qualities of the newer park (Karres en Brands, n.d.).
Bureau B+B's master plan for de Tempel, located near Rotterdam, aims to transform the surroundings of the estates into a residential area for elderly individuals requiring care. The design restores de Tempel's 18th-century foundational layout, featuring classical avenues, baroque water features, and a sculpture park, while integrating 19th-century serpentine paths (B+B, 2024).

Figure 40. Parcelation Structure and Treelines still visible

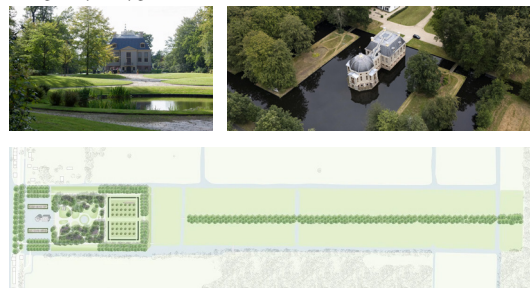Figure 41. Garden reconstruction Hofwijck, Images by Huygens Museum

Figure 42. Reconstruction of Trompenburgh and de Tempel, Images by Karres en Brands, Chiel van Diest and Bureau B+B

Lost Heritage strategies

Overall, when examining how **Lost Heritage** can be represented in the landscape, three main design strategies emerge.

1. Improving spatial characteristics that retain the former parcellation structure
2. Reconstruction of gardens where possible
3. Reinstating historical planting and materials

These three strategies focus on the restoration and reconstruction of 17th- and 18th-century estate gardens, aiming to re-establish their historical layouts and features. To integrate them with contemporary uses, which allows the historical gardens to regain their cultural and aesthetic value, while adapting to modern needs in a way that respects their heritage.

Figure 43. Design Strategies Lost Heritage

4.6 Landscape Style Parks

The parks Arentsburgh, Middenburg/ Sonnenburgh and Vreugd en Rust form part of the 'Vlietzone' estate biotope. These three sites are the only estates in the area where the historic gardens have evolved into public parks with a landscape style, while other estates have remained privately owned. Overall, the parks have been relatively well maintained.

However, over time, minor interventions have impacted their spatial coherence and landscape quality, particularly in park Arentsburgh, where the construction of Nieuw Hadriani has disrupted the original structure. In 'Middenburg/ Sonnenburgh' and 'Vreugd en Rust' subtle renovations have taken place to restore and add to the original quality. Based on these developments and relevant precedent studies, guiding design strategies will be formulated for the concept of Damaged Heritage.

4.7 Damaged Heritage

The renovation of Park Middenburg/Sonnenburgh focuses on addressing deterioration over the years, with reference to its 1930 layout, when the municipality first acquired it. The primary goal is to restore the original values of the park, particularly the path structure, using modern materials that blend with the historical context. A contemporary layer of furniture has been added to increase accessibility and usability, enhancing the park's functionality for visitors. Trees were cut down that were either disrupting original sitelines, in open spaces or of bad quality (Gemeente Leidschendam-Voorburg, n.d.).

The renovation of Park Vreugd en Rust restored several historical elements based on the original designs of landscape architect J.D. Zocher Jr. Reinterpreting the characteristic Swiss Bridge, with references to it in the railing of a new bridge. Another bridge and dam will be restored to redivide the pond into two sections. The paving will be redone in a modern material, referencing the light pathways Zocher Jr. envisioned. Sightlines from the house were restored by removing trees and creating flowerbeds to emphasize these views (Gemeente Leidschendam-Voorburg, 2021).

Other inspiring references of Landscape style park renovations are those of Twickel and Valkenberg by Michael van Gessel. In both these parks he took a historical base and restored the core qualities. At Twickel a major clean-up, particularly of the shrubbery, was carried out to better articulate the park's spatial structure. This was complemented by the redesign of the paths, the restoration and extension of watercourses. Van Gessel then added further to it by introducing modern elements that respect the park's current state and long history. Replacing the simple and deteriorated bridges with newer ones as ornamental folly-like features. In park Valkenberg the original character of the park was restored through a radical cleanup and simplification, while avoiding a purely historic approach. Van Gessel and B+B added two broad asphalt paths for walking, cycling, and roller-skating to improve connectivity. New elements included a sandbox, modern pavilion and custom lighting (B+B, 2023). The designs aimed to meet modern needs while preserving its historical integrity.

Figure 45. Redevelopment Park Middenburg/Sonnenburgh

Figure 46. Redevelopment Park Vreugd en Rust

Figure 47. Redevelopment Park Twickel and Valkenberg, Images by Michael van Gessel and B+B

Damaged Heritage strategies

In exploring how **Damaged Heritage** can be restored in the landscape, three main design strategies come to light:

1. Re-establishing lost connections within the parks
2. Restoring historic sightlines and visual relationships
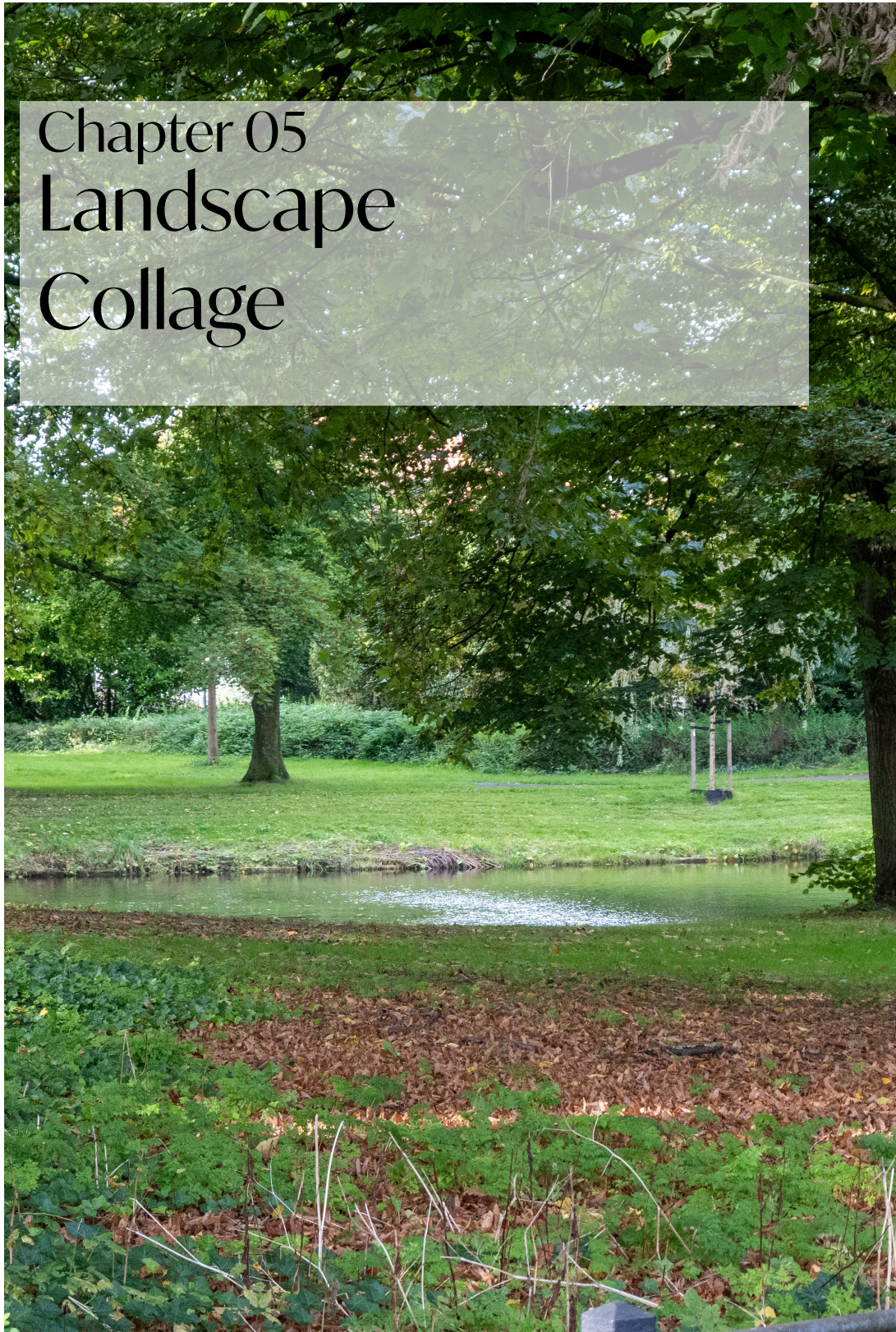**3.** Using current materials

These three strategies build upon the original park landscape while incorporating contemporary features that enhance the design, ensuring they align with the park's historical context.

Figure 48. Design Strategies Damaged Heritage

Chapter 05
Landscape Collage

5.1 Design Concept

To represent the historical layers of the Park Arentsburgh area, a heritage framework will be developed, based on design strategies that address hidden, lost, and damaged heritage. This will take the form of a collage, which will visually capture the layers and nuances of the site's history.

From this collage, a masterplan for the Park Arentsburgh area will be developed, addressing both the contemporary needs and challenges of the site. This includes responding to the urban redevelopment of the Diaconnessenhuis and enhancing public and semi-public spaces. The design aims to improve current functions, ensuring they are more deeply integrated into the landscape and better serve the needs of the community.

To express the historical layers of the Park Arentsburgh area in a readable manner, the elevation differences shaped over centuries will be utilized and accentuated. These changes in terrain, act as physical markers of the site's historical development, illustrating the gradual transformation of the landscape. The lowest elevation will represent the oldest, Roman layer, with each successive elevation revealing a newer historical layer.

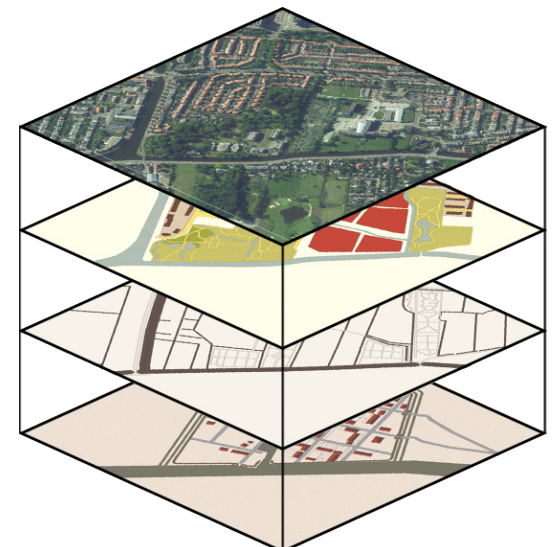Figure 49. Elevation Map of the park Arentsburgh area

Figure 50. Design Concept

5.2 Building up the Collage
Roman Border

The framework starts by bringing back the former Roman border as a spatial reference across the entire site. This linear element, referencing the wall and protection ditches of Forum Hadriani, acts as a unifying object, that is the same throughout the site. Its consistency and clarity offer a strong identifying tool and mark the presence of Hidden Heritage, which itself remains archaeologically preserved but visually absent.
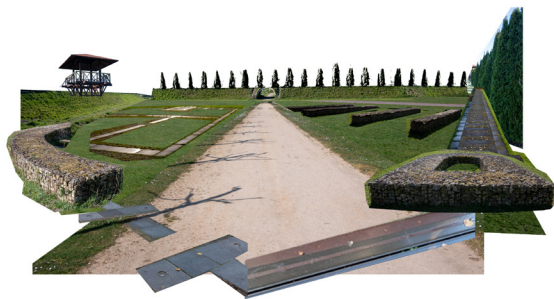
Figure 51. Bringing back the Roman Border

Parcellation Structure

Building on this foundation, the 17th-century parcellation structure is reintroduced to define distinct zones across the park. This layer of Lost Heritage, is translated into several treelines each with a unique functional and spatial link to the 17th-century estate landscape.
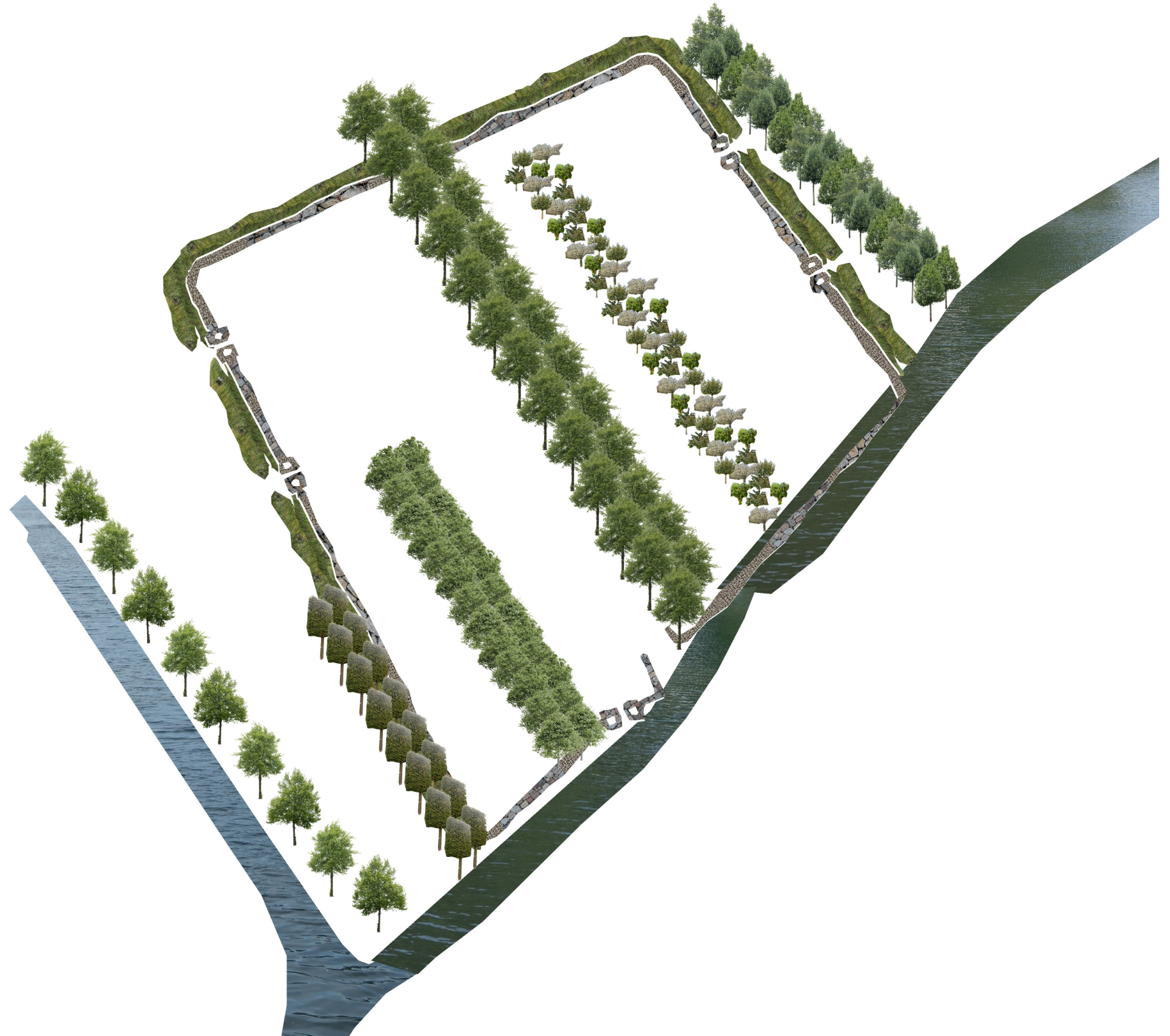
Figure 52. Treelines reintroducing the Parcellation Structure

Re-establishing Connections

To reconnect the Park Arentsburgh area both internally and with its surrounding context, the connections that have persisted through the three historical layers will be re-established. This includes creating an entrance to the north at the former Roman gate, linking the park's interior with a bridge that unites previously fragmented areas, and developing a pathway along the Vliet Canal, recognizing its significance over the past two millennia.
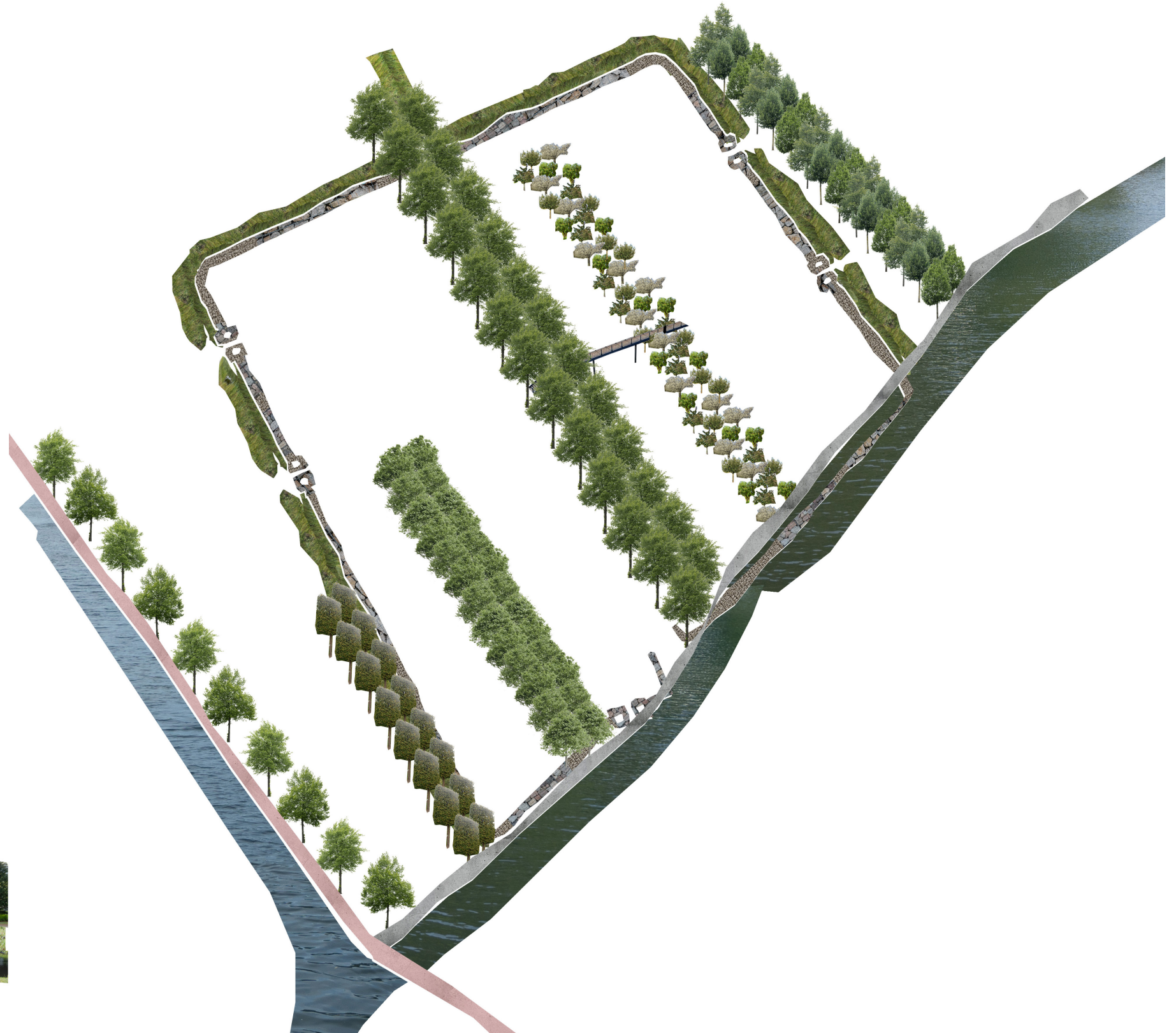

Figure 53. Re-establishing Connections

Palimpsest Layers

The resulting structure allows for the integration of multiple landscape experiences while reinforcing historical continuity. Each zone, based on their elevation level, corresponds with one of the historical layers of the park Arentsburgh area and is designed using the appropriate set of strategies. Leaving the Diaconessenhuis area, situated on the highest elevation, open for modern redevelopment.
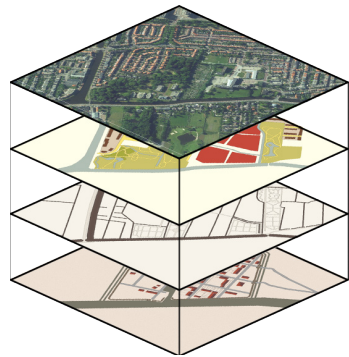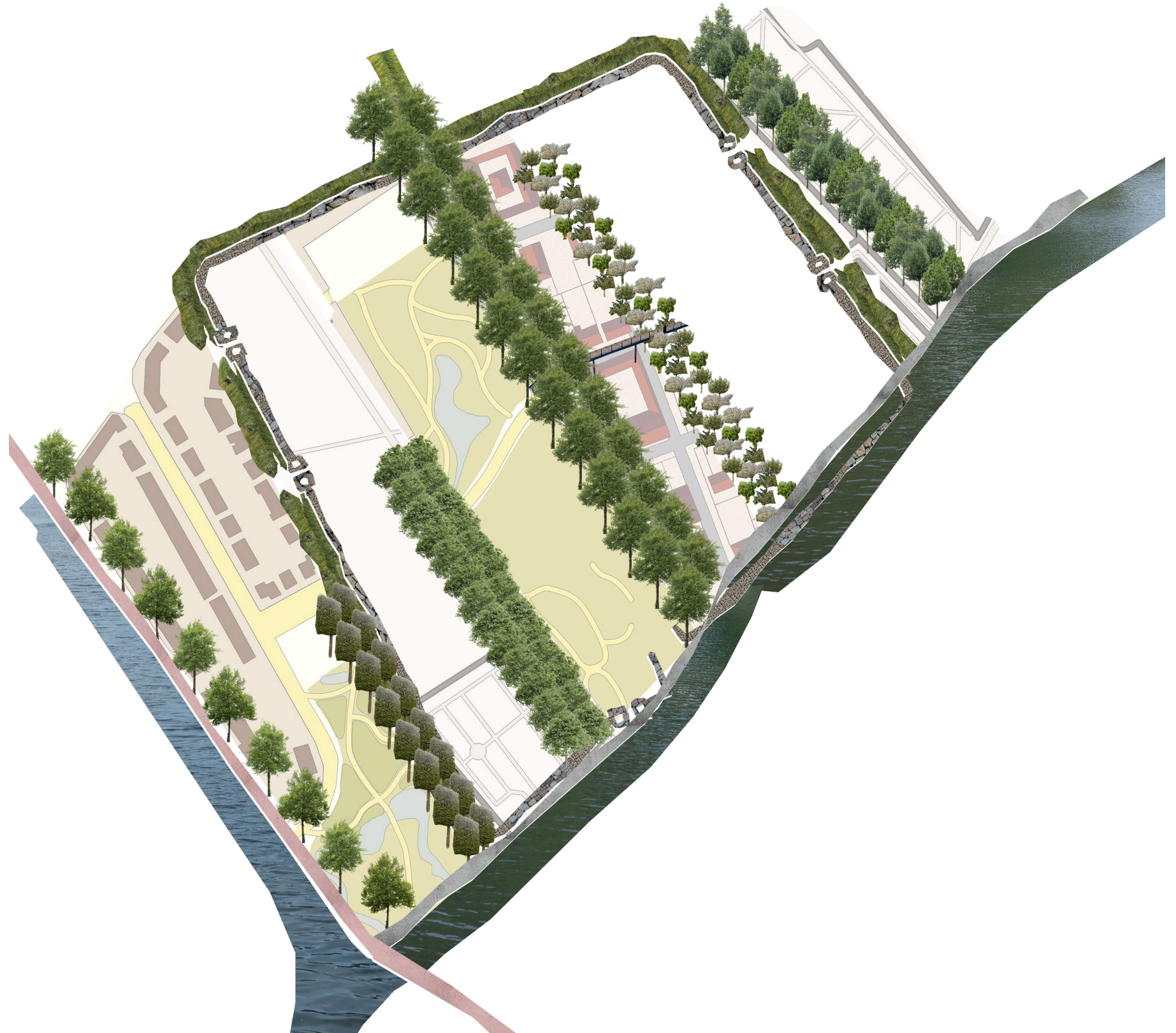
Figure 54. Palimpsest Layers

In this section, the spatial experience of the different zones is clearly expressed, showing how each zone relates to the varying elevation levels across the site.

Figure 55. Collage Section

5.3 Masterplan
Redesign of Park Arentsburgh

Early Landscape Style Park (First Zone): This zone requires minimal intervention, focusing on renewing the bridges and restoring the historical sightlines, maintaining its original design and feel.

Hoekenburg Estate Garden (Second Zone): The former decorative garden of the Hoekenburg estate is reintroduced, creating a refined space for enjoyment and connection to the past. The ditch between Hoekenburg and Arentsburgh estates is restored in its old form, reconnecting to the water feature in Park Arentsburgh, with bridges brought back to strengthen the connection.

Park Arentsburgh (Third Zone): This area emphasizes the landscape style park, restoring open spaces and sightlines. A key feature is the view from the park towards the estate, which is enhanced by opening up the garden wall, making the estate more visible and integrated into the park.

Allotment Gardens (Fourth Zone): Located lower in the landscape, the allotment gardens will be restructured by incorporating Roman traces, which adds a historical layer and structure to the gardens. A 3-meter-high bridge crosses over the gardens, connecting Park Arentsburgh to the new neighborhood, allowing for better circulation and interaction.

New Neighborhood (Fifth Zone): Positioned on the highest point, the new neighborhood combines family housing and apartment buildings. The high-rise buildings are located closer to the Vliet, while family homes are situated along the orchard. The Roman border becomes an interesting feature here, interacting with the buildings and creating a visible contrast, as the surface level is three meters higher than the border itself.

Heeswijk Estate Garden (Sixth Zone): This zone becomes a public park for the entire area, with parts designated for allotment gardens for the apartment buildings. It provides a central recreational space that ties the surrounding areas together, offering both private and communal green spaces.

Figure 56. Masterplan park Arentsburgh area

5.3 Experience

The Roman wall is reimagined with gabions, wire mesh filled with local stone, and ditches running alongside it. Set at 0m + NAP, it carves through the different higher layers across the site, creating a consistent, yet interesting feature.
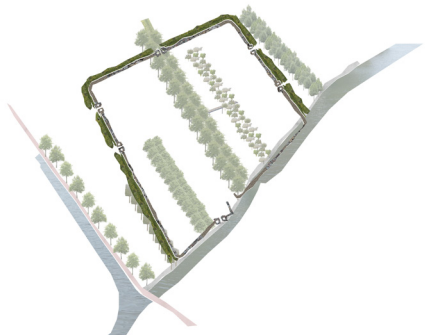

Figure 57. Roman Wall

Along the Trekvliet to The Hague, a Jaagpad is restored by adding a cycling path between the canal and the treeline, which is lined with Linden. This new cycle path reintroduces the original transport function of the Jaagpad, offering a modern and efficient cycling route that connects Pijnacker Nootdorp and even Delft to the city center of The Hague. It provides a fast, direct connection that meets the growing need for sustainable transport while respecting the historical significance of the Jaagpad.
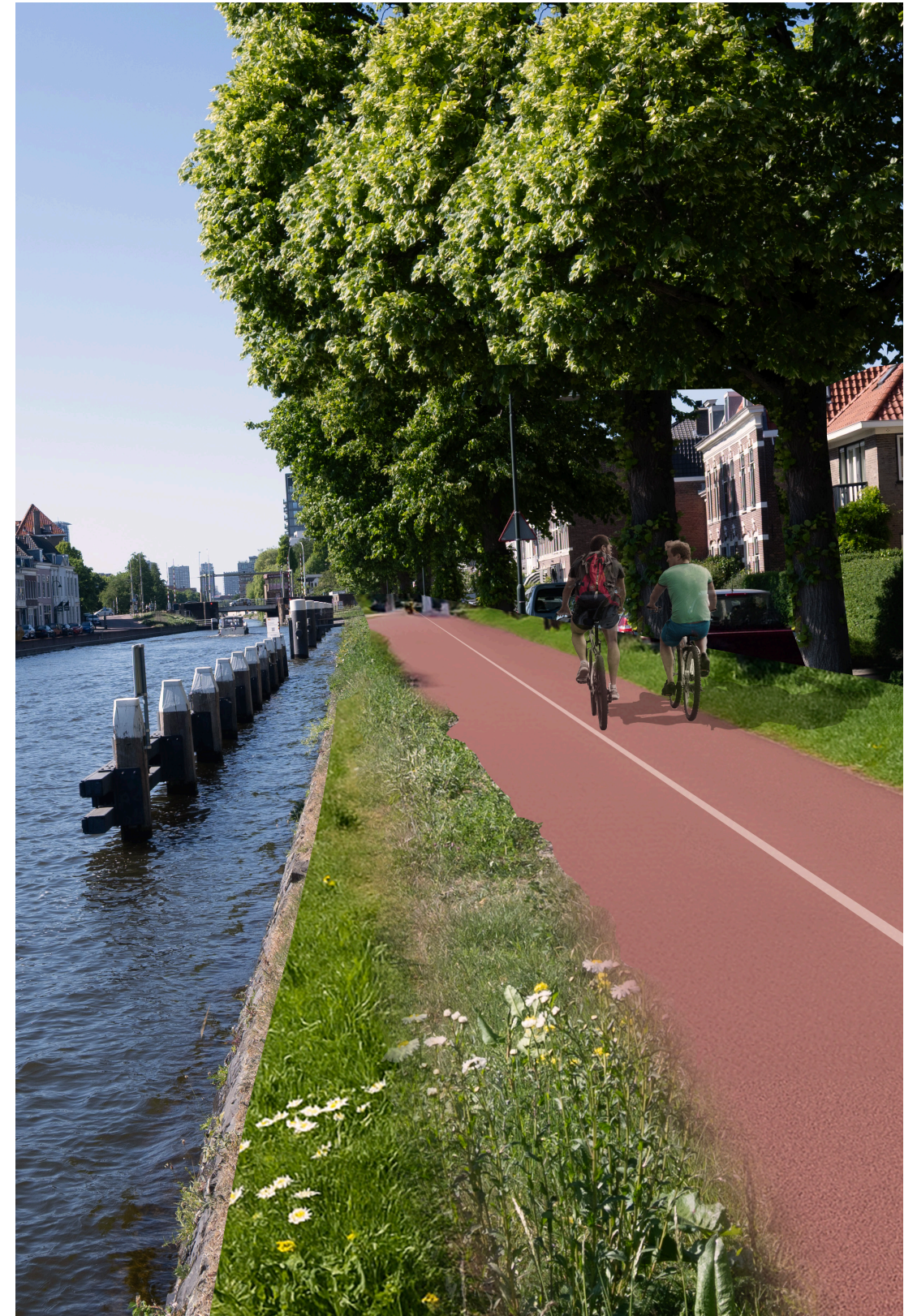

Figure 58. Jaagpad Section

Figure 59. Jaagpad

The treeline of espaliers (Poplars) is placed along the edge of the decorative garden at the Hoekenburg estate, paired with boxwood hedges to reference the high hedges that once surrounded 17th-century gardens. This new boundary will serve as a transition between the public park and the semi-public Nieuw Hadriani garden, offering a clear visual shift between the two spaces. It also replaces the existing fence, providing a more refined, historical connection to the past while enhancing the atmosphere of both areas.

Figure 60. Section Espalier Treeline

Figure 61. Espalier Treeline

This Beech treeline follows the original driveway towards the Hoekenburg estate. It is placed in the meadow with the winding paths of the current park going through it, to show this old connection the grass underneath the trees will be kept short creating a visual clear line. On either side vegetation can develop.
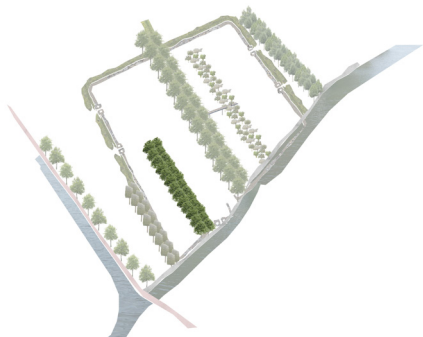
Figure 62. Section Driveway Hoekenburg

Figure 63. Driveway Hoekenburg

The Linden treeline along Arentsburghlaan will be preserved, while its underlayer will be transformed with hedges that include openings.

Figure 64. Section Driveway Arentsburgh

Figure 65. Driveway Arentsburgh

An orchard will be established, drawing inspiration from the Nutstuinen of the 17th century. This complements the neighboring allotment gardens, creating an open, accessible, and functional area in the heart of the park.
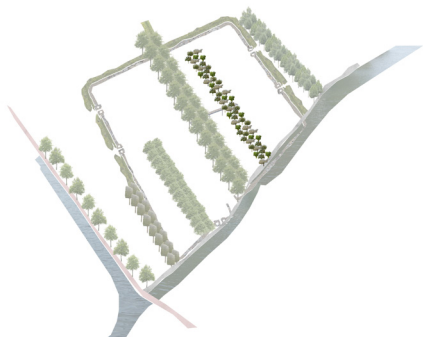
Figure 66. Section Orchard

Figure 67. Orchard

This Oak treeline once formed the driveway to the former Heeswijk estate and now serves as a transition zone between the residential area and the revived recreational garden of the Heeswijk estate. It provides a natural boundary, linking the residential space to the park while preserving the historical connection to the estate.
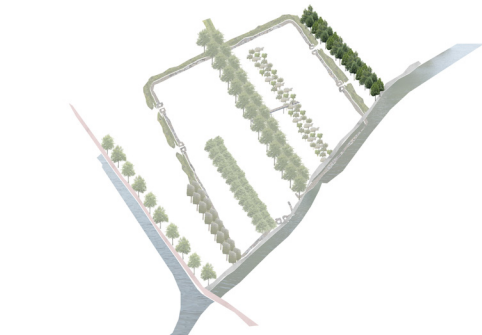
Figure 68. Section Driveway Heeswijk

Figure 69. Driveway Heeswijk

This bridge creates a new connection between what is now Park Arentsburgh and the Diaconessenhuis area, bridging the current gap caused by the allotment gardens. The bridge re-establishes a historic link that dates back to the Roman main road. In the design, it connects the new urban area with the park, enhancing the flow and accessibility within the park.
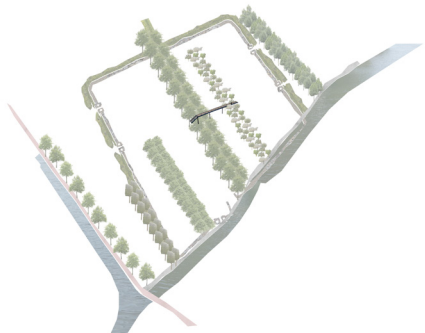
Figure 70. Connecting Bridge

The connection to the Prinses Mariannelaan is strengthened by creating an entrance to the allotment gardens at this point. Following the path of the Roman main road, people will enter through the gates into the new allotment area and also into the representation of the UNESCO World Heritage site Forum Hadriani.

The layout of Forum Hadriani is projected onto the current allotment gardens, creating a framework of open and vegetated spaces. Within the outline of the former buildings, an open grass field is established, while the allotment gardens are positioned outside of this boundary. This design links the historical plan of the Forum to the present, preserving the spatial structure of the past while integrating it into the current landscape, providing both functional and aesthetic value to the space.
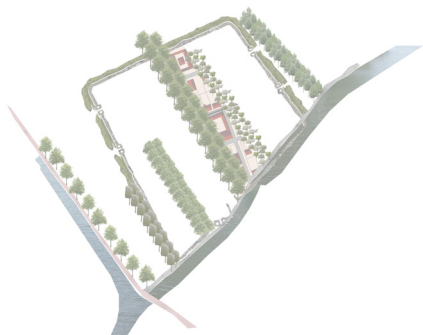
Figure 71. Entrance UNESCO World Heritage site

The reconstructed Forum of Forum Hadriani is completely open, making room for a gathering space. The surface here is intentionally lowered, so when it rains, water will collect in this area, symbolizing the high groundwater level that has helped preserve the Roman traces beneath the ground.
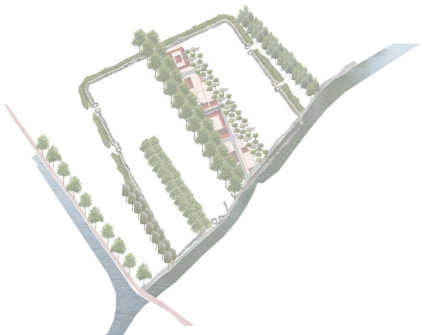
Figure 72. Allotment Garden

The semi-public garden of the Hoekenburg estate offers a peaceful environment, providing a space to live and enjoy the surrounding decorative garden. It's designed with hedges and flowering plants, creating a tranquil and visually appealing atmosphere.
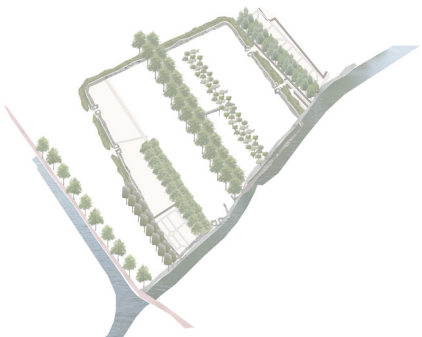
Figure 74. Garden Hoekenburg

The Heeswijk Estate garden is designed to be more public, serving as a park and garden for the new housing development in the Diaconessenhuis area. The Nutstuinen provide residents with the opportunity to grow their own food, while the decorative forest is being recreated to enhance the natural beauty of the space.
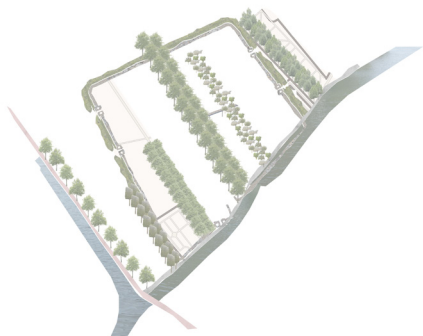
Figure 75. Garden Heeswijk

In Park Arentsburgh, the connection between the park and the Nieuw Hadriani apartment complex is restored by opening up the garden wall. This creates a visual link between the two, allowing the park to flow more seamlessly into the residential area and enhancing the overall integration of the space.
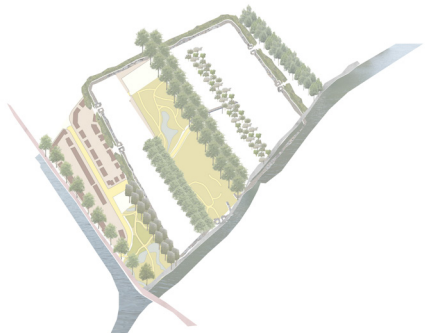
Figure 76. Sightlines Arentsburgh

A sculpture of the large bronze hand, an enlarged version of the one discovered in 1771, is introduced as a symbolic element within the park. The hand played a role in the significant changes that have occurred within the three layers of the landscape: starting the uncovering of Roman traces, the removal of the estate garden and the creation of the landscape park. This powerful symbol serves as a marker of transformation, reflecting the deep historical and cultural shifts within the area.

In addition, connections throughout the entire park Arentsburgh area are improved by introducing new pathways. One such pathway runs through Park Arentsburgh, leading towards the bridge over the allotment gardens and connecting to the new neighbourhood.
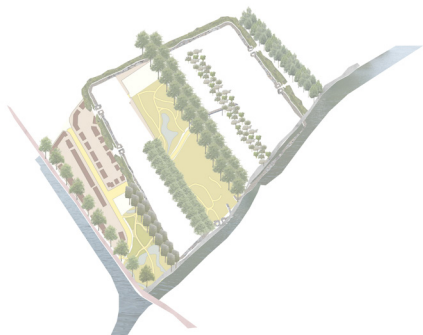
The Roman border serves as an outdoor space for the apartment buildings in the new neighborhood, creating a natural boundary and a shared outdoor area. The building blocks are arranged so that each has a private inner garden, offering residents a secluded space for relaxation.

Figure 77. Roman Border along the new neighbourhood

In between the building blocks, small squares are introduced, providing spaces for gatherings and events. The main square is strategically placed and connected to the bridge, allowing easy access from the park and the new neighborhood.

Figure 78. Connection from the neighbourhood to the park

Chapter 06
Conclusion and Reflection
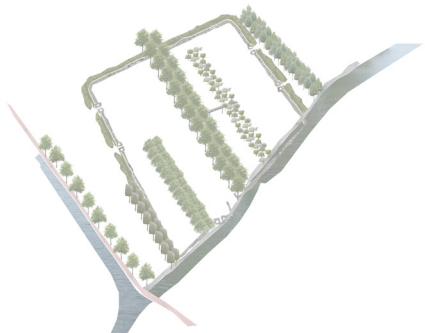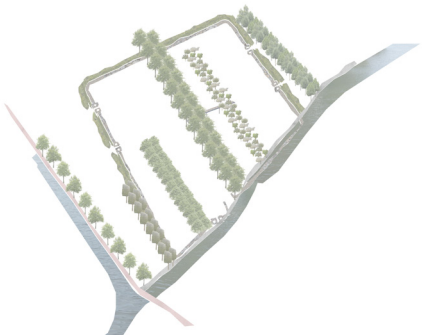
6.1 Conclusion

The **Main Research Question** of this thesis was:
"What landscape strategies can be developed and applied to visualise different layers of heritage above ground?"

To answer this, it was applied to the park Arentsburgh area, where multiple heritage layers are poorly visualised. Three sub-research questions were developed to guide this more detailed research. The answers to these sub-research questions contribute to answering the main research question.

The **first sub-research question** revolved around the Research for Design structure:
"What are the defining historical layers of Park Arenstburgh and to what extent are these layers still represented?"

Looking at the park Arentsburgh area from the perspective of a Landscape Biography, three apparent historical layers came to the foreground, that are positioned underneath the current landscape.

The first layer is that of Forum Hadriani, one of two Roman cities in the Netherlands. It was shaped during Emperor Hadrian's rule, a period marked by the fortification of the Roman Empire's borders and strategic use of the landscape in the layout of the city to create unity and order. The Roman layer still has physical archaeological traces in the ground, preserved by natural landscape conditions and the limited development in the centuries that followed. However, these traces are no longer visible in the present-day landscape and can therefore be considered **Hidden Heritage**.

The second layer is that of the Hoekenburg, Arentsburgh and Heeswijk estates, situated in a linear structure of estates situated on higher ground. These estates had gardens set up in a Dutch classicistic manner, rectangular structured gardens with treelines, utility gardens and decorative elements. Renovations, rebuilding and the later transformation of the gardens into a

landscape style, as well as the disturbances caused by archaeological excavations, have erased most visible traces. Only historical maps, drawings and written accounts remain as evidence of their existence. We can describe this as **Lost Heritage**.

The third layer consists of landscape-style parks in Voorburg, which evolved from the former estate gardens. As Voorburg expanded, these gardens were incorporated into public parks, serving as green spaces within the growing urban fabric. Although this landscape park layer remains physically present and is the only visible remnant of the area's layered heritage, its integrity has been partially compromised by urban development within the parks themselves. This degradation allows it to be classified as **Damaged Heritage**.

The **second sub-research question** concerns itself with the Research about Design structure:
"What are design strategies that can be used to represent archaeological and disappeared heritage?"

The notions of Heritage from the previous sub-research question are further analysed and examined with a broader context to extract design strategies. This involves looking at precedents that function on the same overarching scale and see if a design language/heritage approach can be defined that fits the specific type of heritage.

For the design strategies related to **Hidden Heritage**, the approach taken along the Lower German Limes has been analysed. Since this layer has the same characteristics and conditions as the remains of Forum Hadriani. The way Roman fortresses along the Limes have been reintroduced into the contemporary landscape reveals several design strategies:

1. Emphasising the original scale
2. Highlighting underlying spatial structures
3. Reinterpreting historical elements through the use of new materials

The **Lost Heritage** layer relates to the historical estate zone that stretches from Rijswijk to Leidschendam. As in the Arentsburgh park area, most of the original estates and their gardens have disappeared, either replaced by newer estates and landscape parks or removed entirely due to redevelopments. To reintroduce elements of this lost heritage, several design strategies can be employed:

1. Improving spatial characteristics that retain the former parcellation structure
2. Reconstruction of gardens where possible
3. Reinstating historical planting and materials

The landscape parks in Voorburg have gradually changed over time, with developments altering their original spatial and visual quality. As a result, this layer of **Damaged Heritage** requires careful and subtle interventions to restore its character. Possible design strategies include:

1. Re-establishing lost connections within the parks
2. Restoring historic sightlines and visual relationships
3. Using current materials

The **third sub-research question** follows the Research through Design approach:
"How can the design strategies be applied to the Park Arentsburgh area to facilitate an appropriate design?"

The design strategies for Hidden, Lost and Damaged Heritage serve as a layered and site-specific framework for spatial development in the Park Arentsburgh area. This framework allows the design to reflect and reinterpret the site's historical complexity while accommodating contemporary needs. Following a Landscape as Collage methodology the design of the park Arentsburgh area is build up in the following steps.

The framework starts by bringing back the former Roman border as a spatial reference across the entire site. This linear element, referencing the wall and protection ditches of Forum Hadriani, acts as a unifying object, that is the same throughout the site. Its consistency and clarity offer a strong identifying tool and mark the presence of Hidden Heritage, which itself remains archaeologically preserved but visually absent.

Building on this foundation, the 17th-century parcellation structure is reintroduced to define distinct zones across the park. This layer of Lost Heritage, is translated into several treelines each witha unique functional and spatial link to the 17th-century estate landscape.

Finally, these zones are connected with each other, creating a spatial framework that reorganises the fragmented Park Arentsburgh area. The resulting structure allows for the integration of multiple landscape experiences while reinforcing historical continuity. Each zone, based on their elevation level, corresponds with one of the historical layers of the park Arentsburgh area and is designed using the appropriate set of strategies.

By embedding historical references within a clear and legible spatial framework, the design not only uncovers and honours the site's layered past but also facilitates new uses. This approach positions Park Arentsburgh as a contemporary translation of palimpsest.

Transferability

While this research is rooted in the specific context of Park Arentsburgh, its approach could have a broader applicability. The combined use of landscape biography, academic eclecticism and the palimpsest lens could be applied to other complex sites where multiple historical layers interact. Also the design methodology of Landscape as a Collage could be interesting in other similar historical sites.

The classification of heritage into Hidden, Lost and Damaged categories provides an approach for analysing and designing in historically layered landscapes where physical traces are not visible, absent or disrupted. These categories support an understanding of heritage beyond the visible monument and allow for differentiated design responses.

In addition, the design strategies developed for each heritage type could be the foundation for a broader design language. Catering towards respectively, the Lower German Limes, the Estate zone from Rijswijk to Leidschendam and the landscape style parks in Voorburg. Even a redesign for the park Arentsburgh area from only one of the historical perspectives can be made, which could become a starting point for new discussions.

In this way, the thesis offers both a site-specific spatial strategy for the park Arentsburgh area and a transferable methodology for heritage based design in historically layered contexts.

6.2 Reflection

Approach
At the start of the research process, I focused solely on understanding the landscape through the lens of palimpsest, disregarding the other landscape architectural principles for clarity. This approach gave me a clear understanding of the physical layers of the Park Arentsburgh area but lacked context. Later, I introduced the concept of landscape biography, which helped me connect natural processes and scale continuum to the palimpsest. I realized the park is part of a larger system linked by geomorphology, and embracing the other principles deepened my understanding of the interconnections between them. I found that starting with palimpsest reveals layers within a specific location, while scale continuum works outward from larger systems. However, I struggled to transition from understanding the landscape to the design phase, as I faced the challenge of representing all these layers in a single design. I needed a 'Crucial Step' (Figure X) to translate the complexity of the palimpsest into a cohesive design.
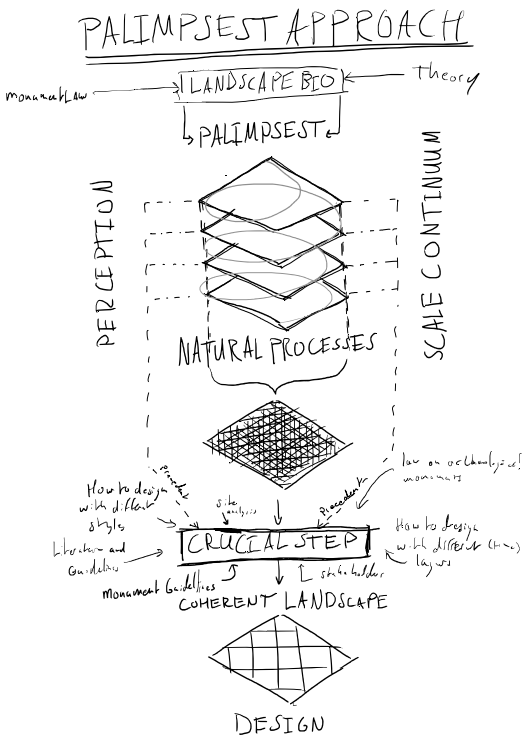

Figure 79. Palimpsest Approach

The first breakthrough came when I encountered the concept of eclecticism, which provided a theoretical framework to synthesize my findings. Now I had a frame to justify using these different time layers within the design, however, doing so still proved difficult. The locations I highlighted the different layers, which were not grounded at first, so I started using the landscape features to classify the different areas, looking at height differences and former structures. It was around this time that I was introduced to landscape designs as a collage, by my second mentor, which was, in the end, 'the crucial step' I was looking for in the design process. Being able to justify the different layers next to each other within a logical larger spatial framework based on former structures was immediately clear. This has made all the work I had done suddenly come together right before the end of the process resulting in an enormous boost of productivity at the end.
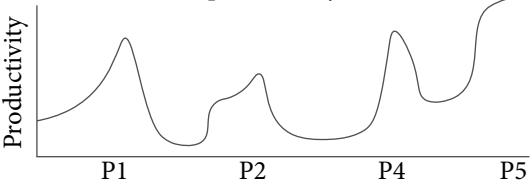
Influence of Research on Design
The frame of this thesis made it so that the design and landscape biography focussed on the development and physical manifestations of past layers in present landscape with reference. While very interesting and sufficient for a design research, I feel that personal narratives are still missing, the interventions on the smallest scale that elevate a design to another level above. Researching and translating personal narratives into a design could require an entirely separate master thesis in its own right. This process would involve exploring how individual stories, memories and writings of a place can inform design choices. It would necessitate a deep dive into human experiences and how these personal connections can be expressed through spatial interventions. This approach would stray from the palimpsest framework, but would be a nice continuation of the Landscape Architectural Principles lab.

Feedback
The greatest help I received from my mentors was their encouragement to explore beyond the constraints I had set for myself. During the majority of the design phase, I struggled with how to represent the different layers of the landscape, being extra careful implementing large structures or vegetation due to UNESCO guidelines. However, their advice, that I should not adhere too rigidly to these rules, or else nothing would happen, was a pivotal moment in my process. It forced me to reconsider my approach and ultimately led me to a clearer understanding of the purpose behind my design.

I realised that the goal was not to create a fully functioning, realistic and immediately applicable design. Instead, it was a research method, a way to explore what is possible in landscape design to revitalize the palimpsest of a specific site. The design itself was a tool for investigating the potential for integrating historical layers into a contemporary context, rather than an end product to be implemented as is. This shift in perspective allowed me to embrace a more experimental, creative approach to the design process, focused on possibilities rather than constraints.

Chapter 07.
Bibliography

Chapter 1.

Buijtendorp, T. M. (2010). Forum Hadriani. De vergeten stad van Hadrianus: Ontwikkeling, uiterlijk en betekenis van het 'Nederlands Pompeji'. [, Vrije Universiteit Amsterdam]. Vrije Universiteit.

Centraal Bureau voor de Statistiek. (2025, March 26). Kerncijfers wijken en buurten 2023. Centraal Bureau Voor De Statistiek. https://www.cbs.nl/nl-nl/maatwerk/2025/13/kerncijfers-wijken-en-buurten-2023

Den Haag. (2025, April 14). Projecten - Den Haag. https://projecten.denhaag.nl/gebied/ontwikkelingen-binckhorst/

Driessen, M. J., Besselsen, E. (2014). Voorburg-Arentsburg. Een Romeinse havenstad tussen Rijn en Maas,Themata 7,. Unknown Publisher. 10.17026/dans-xtw-efxa

Janssen, J., Luiten, E., Renes, H., & Stegmeijer, E. (2017). Heritage as sector, factor and vector: conceptualizing the shifting relationship between heritage management and spatial planning. European Planning Studies, 25(9), 1654–1672. https://doi.org/10.1080/09654313.2017.1329410

Rijksdienst Cultureel Erfgoed. (2011) Kiezen voor Karakter. https://www.cultureelerfgoed.nl/publicaties/publicaties/2011/01/01/visie-erfgoed-en-ruimte-kiezen-voor-karakter

Rijksdienst Cultureel Erfgoed. (2021). Haaglanden-Delfland. In Rijksdienst Cultureel Erfgoed. https://rce.webgispublisher.nl/user/uploads/pdfs/panoramalandschap/42_Haaglanden_en_Delfland.pdf

Rijksdienst Cultureel Erfgoed. (n.d.). Arentsburgh/Hoekenburg. https://monumentenregister.cultureelerfgoed.nl/complexen/524454

Rijksoverheid. (2025, January 27). Zorg voor onroerend erfgoed. Erfgoed | Rijksoverheid.nl. https://www.rijksoverheid.nl/onderwerpen/erfgoed/zorg-voor-cultureel-erfgoed/zorg-voor-onroerend-erfgoed

UNESCO World Heritage Centre. (n.d.). Frontiers of the Roman Empire – The Lower German Limes. https://whc.unesco.org/en/list/1631/

Van Etteger, R. (2015). Tijd. In H. Dekker, M. Horsten, M. Kok (Eds.), Duurzame landschapsarchitectuur (pp. 220-225). Uitgeverij Blauwdruk.

Chapter 2.

Rogers, E. B. (2002). Landscape design: a cultural and architectural history. Choice Reviews Online, 39(07), 39–3967. https://doi.org/10.5860/choice.39-3967

Frankel, L., & Racine, M. (2010, 7 juli). The Complex Field of Research: for Design, through Design, and about Design. DRS Digital Library. https://dl.designresearchsociety.org/drs-conference-papers/drs2010/researchpapers/43

De Wit, S., & Bobbink, I. (2020). Landscape architectural perspectives as an agent for generous design. DOAJ (DOAJ: Directory Of Open Access Journals). https://doi.org/10.7480/rius.6.97

Bailey, G. (2006). Time perspectives, palimpsests and the archaeology of time. Journal Of Anthropological Archaeology, 26(2), 198–223. https://doi.org/10.1016/j.jaa.2006.08.002

Kolen, J. & Renes, J. (2015). Landscape Biographies: Key Issues, in: J. Kolen, J. Renes & R, Hermans (Eds.), Landscape Biographies. Geographical, historical and archaeological perspectives on the production and transmission of landscapes, Amsterdam (Amsterdam University Press), 21-47

De Jong, J. (2015). A Kaleidoscopic Biography of an Ordinary Landscape: Key Issues, in: J. Kolen, J. Renes & R, Hermans (Eds.), Landscape Biographies. Geographical, historical and archaeological perspectives on the production and transmission of landscapes, Amsterdam (Amsterdam University Press), 283-308

Samuels, M.S. (1979). 'The Biography of Landscape: Cause and Culpability'. In D.W. Meining (Ed.). The Interpretation of Ordinary Landscapes: Geographical Essays (pp. 51-88). New York/ Oxford: Oxford University Press.

Longstreth, R. W. (1982). Academic eclecticism in American Architecture. Winterthur Portfolio, 17(1), 55–82. https://www.jstor.org/stable/1180764

De Sola-Morales, I. (1987a). The Origins of Modern Eclecticism: The Theories of Architecture in Early Nineteenth Century France. Perspecta, 23, 120–133. https://doi.org/10.2307/1567112https://www.jstor.org/stable/1567112

Nieuwe instituut (n.d.). Groen in de Stad #3: Museumpark https://collectie.nieuweinstituut.nl/detail/stories/40?lang=nl

Chapter 3.

Atlas Leefomgeving (n.d.) Maak een reis door 12.000 jaar landschapsgeschiedenis. https://www.atlasleefomgeving.nl/nieuws/maak-reis-door-12000-jaar-landschapsgeschiedenis

Historische Vereniging Rijswijk. (n.d.). https://www.historischeverenigingrijswijk.nl/canon-van-rijswijk.php?urlkey=buitenplaatsen-166

Panman, M. (n.d.). Met de trekschuit op reis vanuit Delft. Erfgoedhuis Zuid-Holland. https://geschiedenisvanzuidholland.nl/verhalen/verhalen/met-de-trekschuit-op-reis-vanuit-delft/

Gemeente Stichtse Vecht. (2024). Nieuwsoverzicht - Stichtse vecht. Stichtse Vecht. https://stichtsevecht.nl/onderwerp/2428/buitenplaatsen

Roemer (n.d.) North Rhine-Westphalia in the Roman Empire | Römer in Nordrhein-Westfalen. https://www.roemer.nrw/en/north-rhine-westphalia-roman-empire

De Jonge, W., & Bazelmans, J., de Jager, D. (2006). Forum Hadriani: van Romeinse stad tot monument. Utrecht, Matrijs

Buijtendorp, T. M. (2010). Forum Hadriani. De vergeten stad van Hadrianus: Ontwikkeling, uiterlijk en betekenis van het 'Nederlands Pompeji'. [, Vrije Universiteit Amsterdam]. Vrije Universiteit.

Buijtendorp, T. M. (2022). De vergeten stad: Het inspirerende verleden van Forum Hadriani. Omniboek.

Raap, E., Brinkkemper, O., & Baas, H. (2022). Panorama Landschap - Haaglanden-Delfland. https://kennis.cultureelerfgoed.nl/index.php/Panorama_Landschap_-_Haaglanden-Delfland

Verschuure-Stuip, G. (2019). Welgelegen: analyse van de Hollandse buitenplaatsen in hun landschappen (1630-1730).

Historische vereniging Voorburg (2018) De Vliet langs Leidschendam en Voorburg.

SB4 Bureau voor Historische tuinen, parken en landschappen te Wageningen (2000). Tuinhistorische analyse en toekomstvisie Arentsburgh / Hoekenburg te Voorburg.

Geschiedenis Van Zuid-Holland. (n.d.). Bevolkingsgroei - 1500 tot nu. https://www.geschiedenisvanzuidholland.nl/verhalen/verhalen/bevolkingsgroei-1500-tot-nu/

Groen Erfgoedzorg (n.d.). Stijlperioden in de Nederlandse tuinarchitectuur - Groen Erfgoed. https://www.groenerfgoedzorg.nl/aanpak/onderzoek/stijlperioden-in-de-nederlandse-tuinarchitectuur

Mannen van Schuim. (2022). Kavelambitie Diaconessenhuis locatie / Voorburg https://herontwikkelingdiaconessenhuis.nl/achtergrondinformatie/over+het+project/default.aspx

Chapter 4.

Rijksdienst Cultureel Erfgoed. (2021, May 28). In situ beschermen. Archeologische Monumentenzorg | Rijksdienst Voor Het Cultureel Erfgoed. https://www.cultureelerfgoed.nl/onderwerpen/archeologische-monumentenzorg/in-situ-beschermen

Leene, T., & Berger, L. (Eds.). (2021). Frontiers of the Roman Empire – The Lower German Limes: Management plan 2021–2027. Nomination file for inscription on the UNESCO World Heritage List. Nederlandse Limes Samenwerking / LVR-State Service for Archaeological Heritage.

Visser, C., de Rond, N., & DaF-Architecten. (2015). Op zoek naar de Lijn. https://www.collegevanrijksadviseurs.nl/adviezen-publicaties/publicatie/2015/02/20/quickscan-limes

Verschuure-Stuip, G. A. (2015). De buitenplaatsbiotoop of landgoedbiotoop: Nieuwe allianties in de bescherming van buitenplaatsen en landgoederen (Zuid-Holland en Utrecht). Vitruvius, 33, 18–23.

Provincie Zuid-Holland. (n.d.). Vlietzone. Retrieved May 16, 2025, from https://geo.zuid-holland.nl/data/chs/tekst/vlietzone.html

Planviewer (n.d.) Voorburg West. https://www.planviewer.nl/imro/files/NL.IMRO.1916.voorburgwest-ON02/t_NL.IMRO.1916.voorburgwest-ON02.html

Huygens Museum (n.d.). Huygens Museum | Locatie Hofwijck. Huygens Museum. https://huygensmuseum.nl/nl/huygens-museum/locatie-hofwijck#

Karres en Brands (n.d.). Buitenplaats Trompenburgh. Karres En Brands. https://www.karresenbrands.com/nl/projecten/buitenplaats-trompenburg

B+B. (2024). G310-Landgoed de Tempel en Nieuw Rhodenrijs -. https://bplusb.nl/project/landgoed-de-tempel-en-nieuw-rhodenrijs/

Gemeente Leidschendam-Voorburg (n.d.) Paper sign in park Middenburg/Sonnenburgh Stationsplein 2, 2275 AA Voorburg, the Netherlands

Gemeente Leidschendam-Voorburg (2021) Opknapbeurt voor Zocherpark Vreugd en Rust https://www.mooivoorburg.nl/2021/02/12/opknapbeurt-voor-zocherpark-vreugd-en-rust/

Landezine. (2011). Twickel Estate by Michael van Gessel. https://landezine.com/twickel-estate-by-michael-van-gessel/
B+B. (2023). Park Valkenberg. https://bplusb.nl/en/project/park-valkenberg/