

Water Machines

Examples from Renaissance until today and
their use in contemporary city

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Pre-diploma booklet
Fall 2020

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“Blending the natural and the artificial is not easy to reconcile with the public’s desire for close contact with natural elements and ambiances. Part of the challenge for landscape designers is to propose sequences that function with a harmonious combination of natural appearances and unavoidable artificiality.”¹

1 Antoine Picon, “Constructing Landscape by Engineering Water”, in A. Berrizbeitia (ed.), *Urban Landscape: Critical Concepts in the Built Environment*, vol. 1, London: Routledge, 2015. pp. 257-266



Techno-nature

The abuse of the notion of nature has been repeatedly criticised by the professional public. Sociologist Bruno Latour argues that we have to recognise that we no longer live in contact with nature but in an environment characterised by a profound blurring of the distinction between the natural and the artificial, but at the same time using technology in nature still used to be perceived as interference by man. Nowadays, as Picon says, maybe the man is adapting the concept of nature to cope with the challenges we face, especially in the urban context.¹

In my pre-diploma, I research the successful examples of creating Water Machines, in other words, the artificial environment made with the help of extreme technology and maintenance in order to achieve the natural-looking environment. I took a look into the origin of the man-made controlled nature - the renaissance garden and the latest version of build nature by Junya Ishigami The Water Garden in Art biotop hotel resort. At beginning of my booklet, I'm interested in how these two absolutely different gardens form different culture, century and purpose can have a similar attitude in terms of manipulating with a defined area and let it be perceived partly as natural. I put the description of Renaissance Garden into the juxtaposition of the image The Water Garden and another way around.



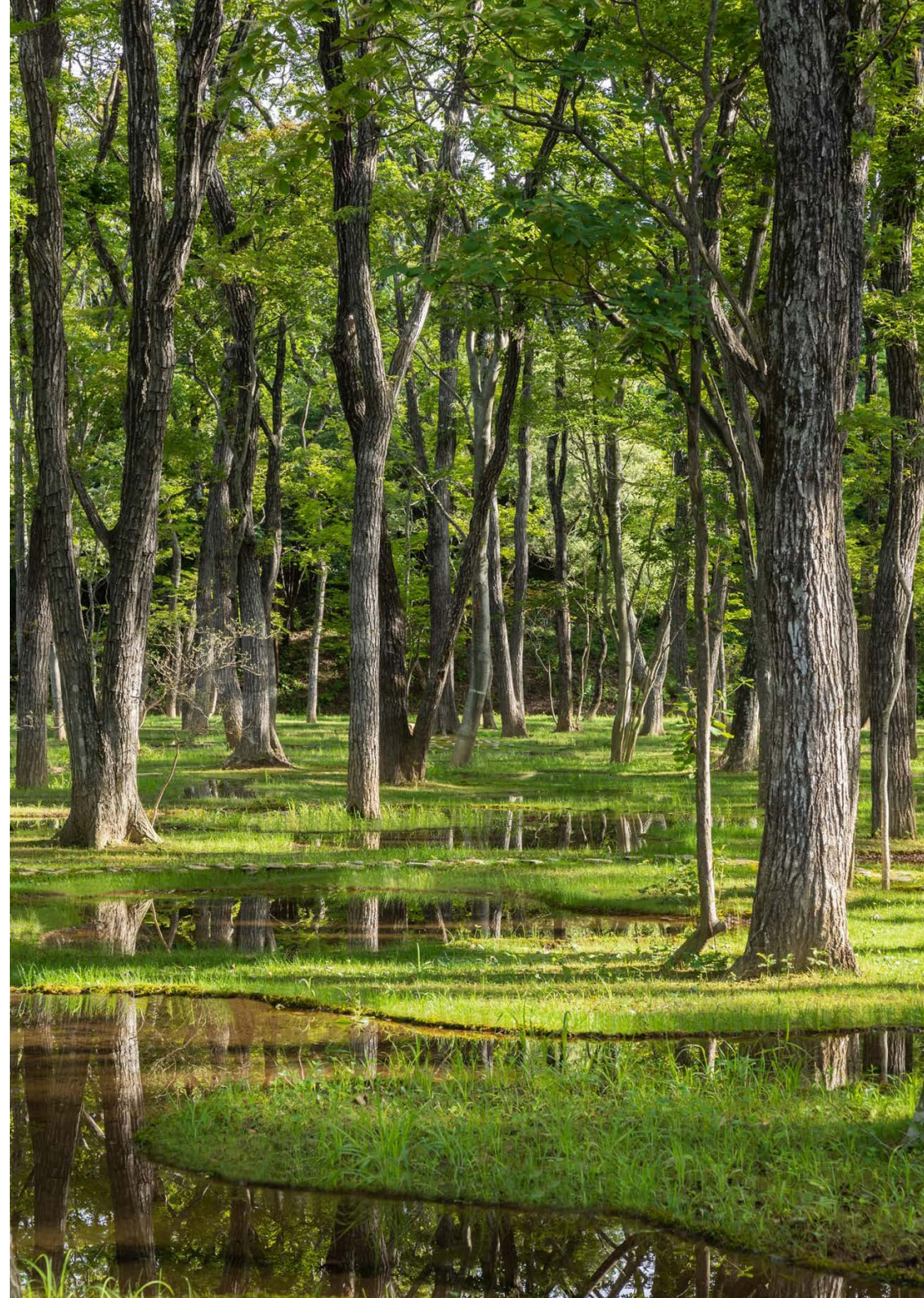
¹ Antoine Picon, "Constructing Landscape by Engineering Water", in A. Berrizbeitia (ed.), *Urban Landscape: Critical Concepts in the Built Environment*, vol. 1, London: Routledge, 2015. pp. 257-266

The Renaissance artists readjusted their focus, so the treatment of gardens triggered a change of attitude towards nature, that it must be tamed for the purpose of humankind, paving the way for an attitude that would become a constant in Western culture.¹ Nature is selected, arranged, and also fabricated into ornament. The form they took, suggests that these ornaments express in varying ways the two fundamental views of nature - inherently ordered, and wild and disordered.² And water as an allegory of nature is a quintessential feature of the garden.¹

1 Girot, C. (2016). The course of landscape architecture : A history of our designs on the natural world, from pre-history to the present. New York: Thames & Hudson.

2 Lazzaro, C. (1990). The Italian Renaissance garden : From the conventions of planting, design, and ornament to the grand gardens of sixteenth-century Central Italy. New Haven, Conn.: Yale University Press.

3 Botanical Farm Garden Art Biotop/Water Garden by junya.ishigami+associates (<https://moool.com/en/botanical-farm-garden-art-biotop-water-garden-by-junya-ishigamiassociates.html>)

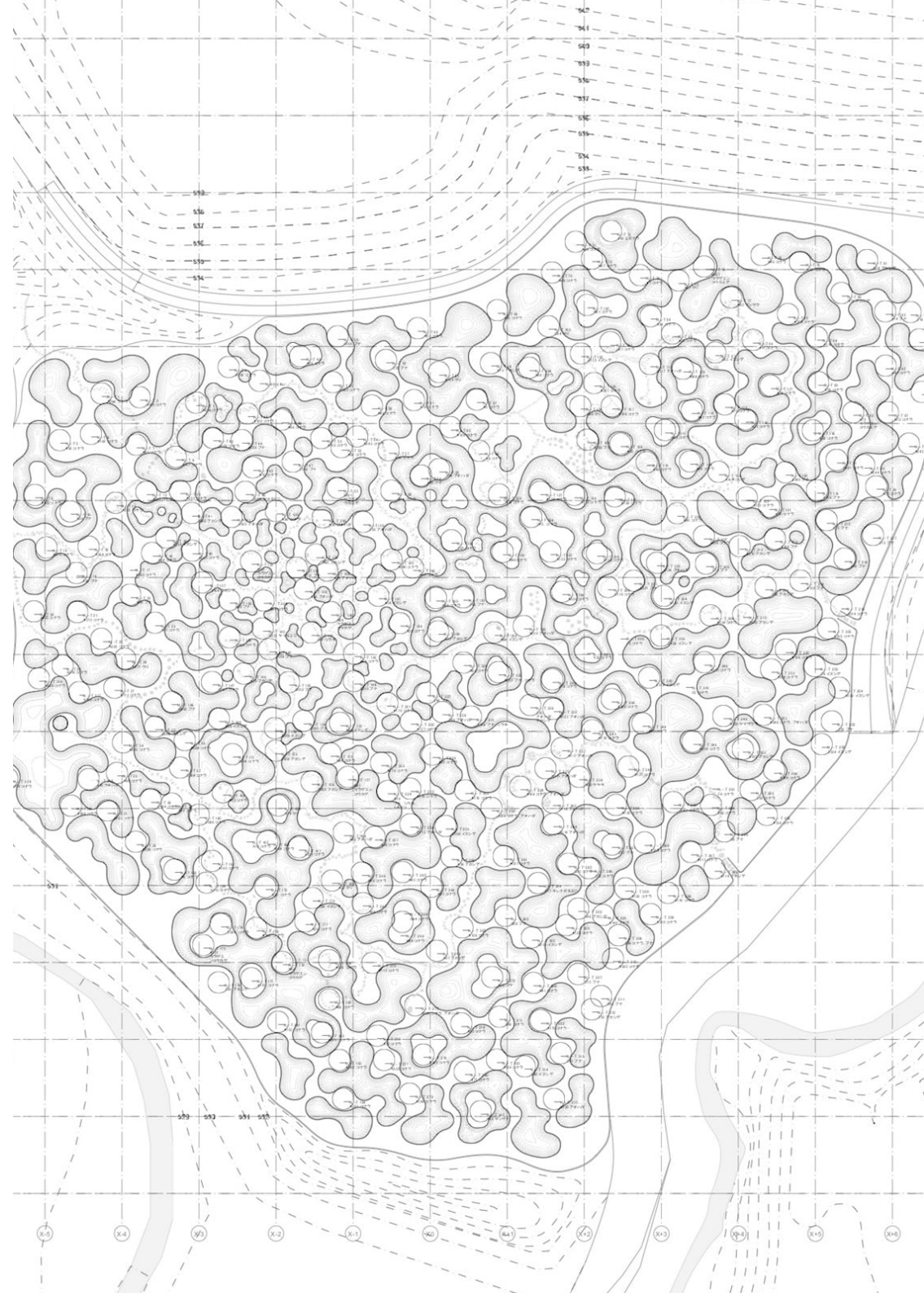


The Garden of Villa Lante demonstrates a complete control over the nature and time. It is a microcosm of precision meant to draw us away from bestiality and lust towards the path of structured reason.

The artificial wood is integral part of the garden design. In Renaissance is the first moment in the landscape history where forest is created, due to total deforestation of mediterian area.¹

1 Girot, C. (2016). The course of landscape architecture : A history of our designs on the natural world, from pre-history to the present. New York: Thames & Hudson.

2 Plan, Botanical Farm Garden Art Biotop/Water Garden by junya.ishigami+associates (<https://mooool.com/en/botanical-farm-garden-art-biotop-water-garden-by-junya-ishigamiassociates.html>)

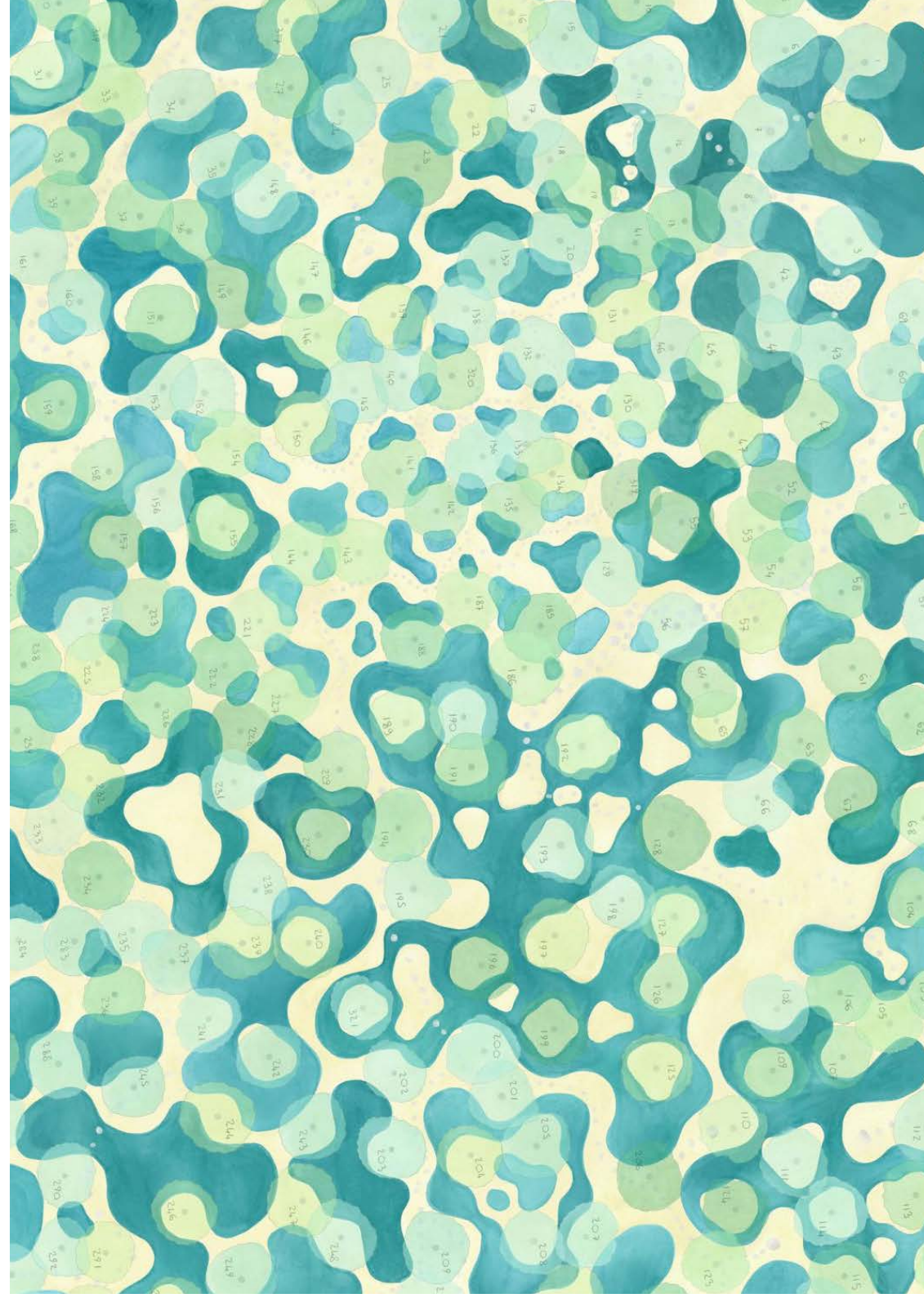


“Through the ornaments and their playful, ironic, and witty presentation, natural phenomena were mastered and domesticated, so that in garden humans could interact with the larger forces of nature microcosm.”¹

8

1 Lazzaro, C. (1990). *The Italian Renaissance garden : From the conventions of planting, design, and ornament to the grand gardens of sixteenth-century Central Italy*. New Haven, Conn.: Yale University Press.

2 Stunning Japanese Landscape. The water garden by Junya Ishigami (<https://www.metalocus.es/en/news/stunning-japanese-landscape-water-garden-junya-ishigami>)



For creating the gardens and modifying our surrounding to suit the need were developed new types of mechanical tools. They included cranes, machines for dragging heavy objects, and devices for earth moving. These same machines were used to lift water and in some instances bring it to gardens.¹

10

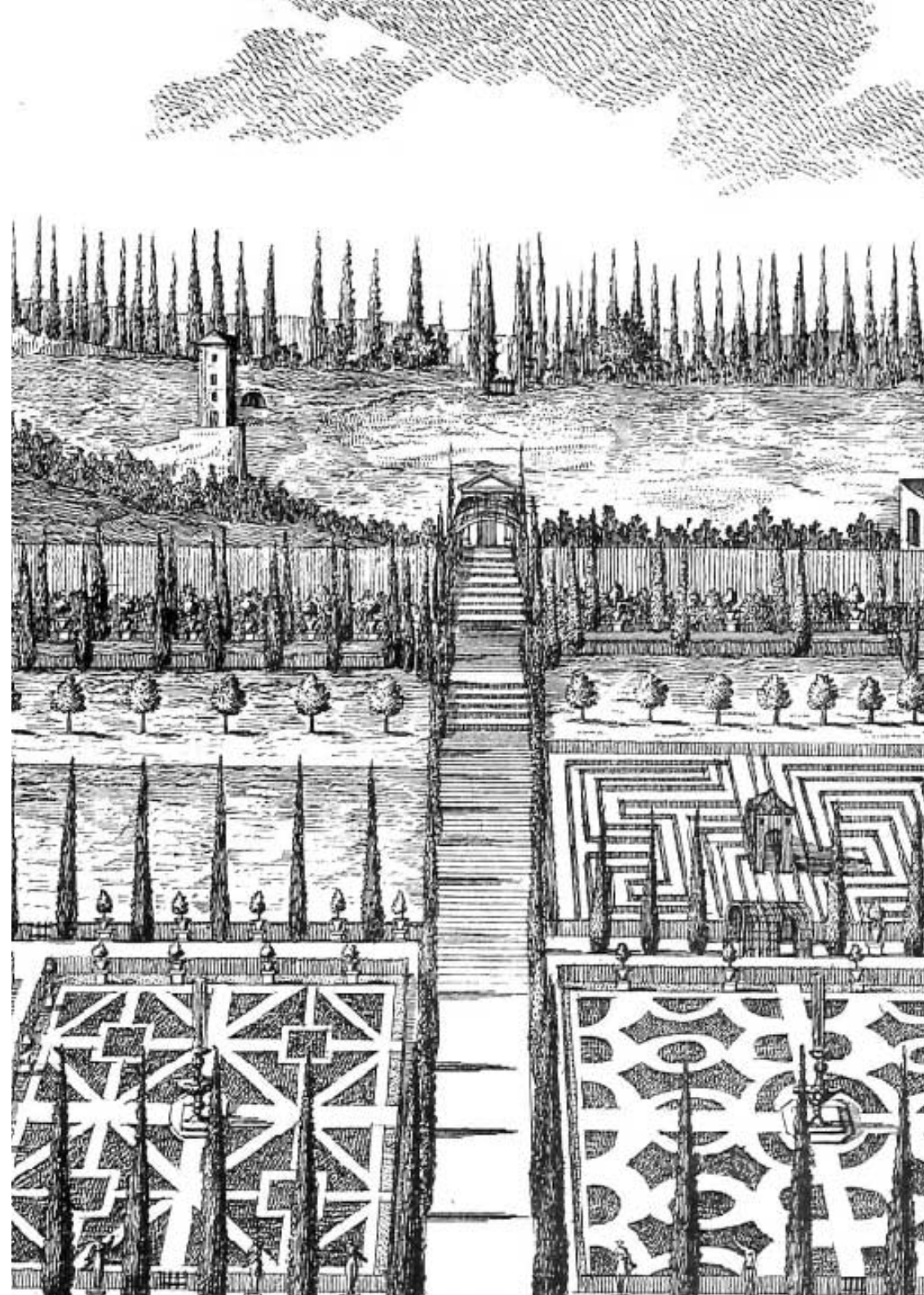
1 Lazzaro, C. (1990). *The Italian Renaissance garden : From the conventions of planting, design, and ornament to the grand gardens of sixteenth-century Central Italy*. New Haven, Conn.: Yale University Press.

2 Botanical Farm Garden Art Biotop/Water Garden by junya.ishigami+associates (<https://moool.com/en/botanical-farm-garden-art-biotop-water-garden-by-junya-ishigamiassociates.html>)



In the same way I juxtaposed a written description of Ishigami's Water Garden and pictures from Renaissance gardens.

14 Planning landscapes as if planning architecture. Extending the scale of architecture and increasing the accuracy and specificity of the landscape are realised simultaneously. By planning specific shapes of trees and ponds, the vague scenery of the forest is given framework, and considered as a space with as much detail as possible. By moving trees to the adjacent site and rearranging them, the pieces of the puzzle are intentionally shifted.¹



1 Botanical Farm Garden Art Biotop/Water Garden by junya.ishigami+associates (<https://moool.com/en/botanical-farm-garden-art-biotop-water-garden-by-junya-ishigamiassociates.html>)

2 Giardino Giusti, Verona, 16th century (<https://giardinogiusti.com/article/11305/il-giardino/?lan=en>)

16 Each pond is connected by pipes and water always flow. The ponds are waterproof, so they are disconnected from the surrounding landscape.¹

1 Junya Ishigami presents Art Biotop Water Garden (https://www.youtube.com/watch?v=3eJ-1dL7Tkq8&ab_channel=TheWorldAround)
2 Giusto Utens, Villa Medici, Pratolino, 1599, Florence, Museo di Firenze com'era



Precedent drawings

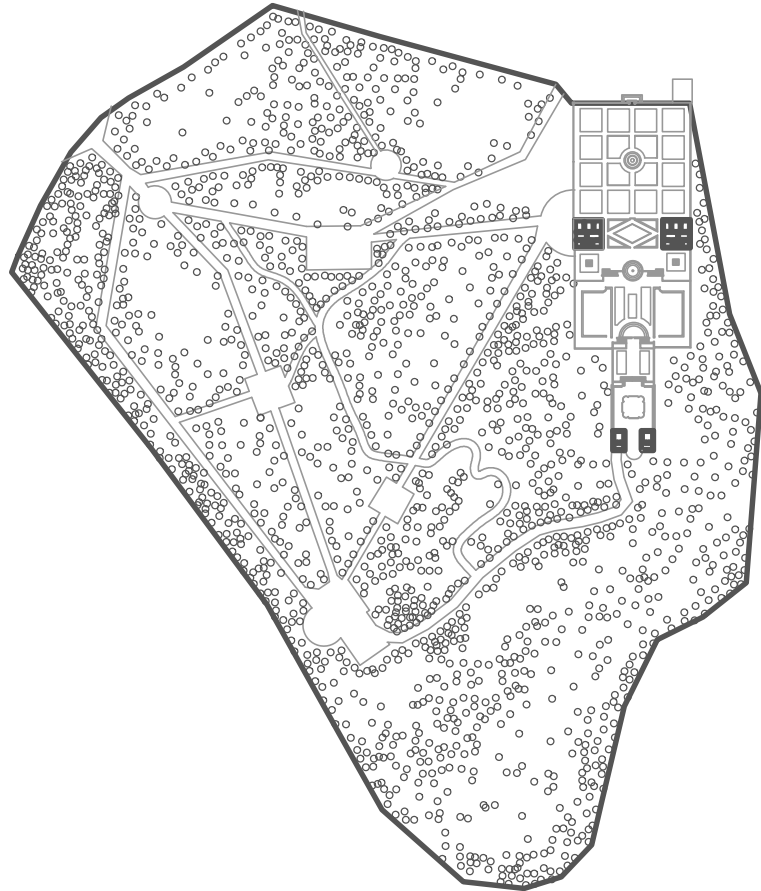
In the second part of my research I had been interested in the water system, which drives these Water Machines. By drawing and comparing garden plans, section and details I was able to understand the technology standing behind.

The essence of all studied water gardens is that water features are supplied by spring coming from the nearby mountains and even though they seem as being separated from the surroundings, they are related to the stream and are still part of the bigger territory. The water from the stream is channelled into the garden from the site's highest point and flows out of the garden at the lowest point. As soon as the water leaves the site, it reverts to its natural course. The main difference is in the way, how water is distributed in the gardens.

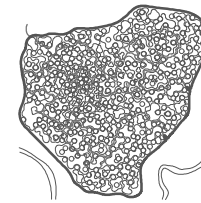
In Villa Lante I found 2 separated circuits, one in the wood and one connects the fountains in the formal garden. Due to the fact that the water is transported through underground pipes, extra water pressure is created to send the fountains' jets of water high into the air. The water flow can be controlled and adjusted. The connecting water courses between water features in a garden are not usually visible, thus giving the impression that the water rises to the surface without a great deal of effort being involved.

In The Water Garden all the ponds are connected and they also work on the gravitational principle, where water flows from top to bottom. Unlike Villa Lante, the water is piped back and flows to the Kamikuro River.

Scale comparison

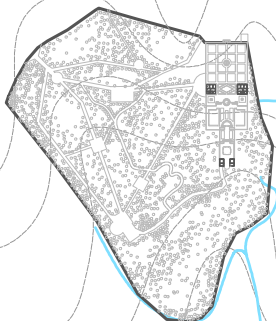


Villa Lante
Tommaso Ghinucci
Bagnaia, Italy
16th century



Art Biotop Water Garden
Junya Ishigami
Tochigi, Japan
2014-2018

Water source of Villa Lante



22

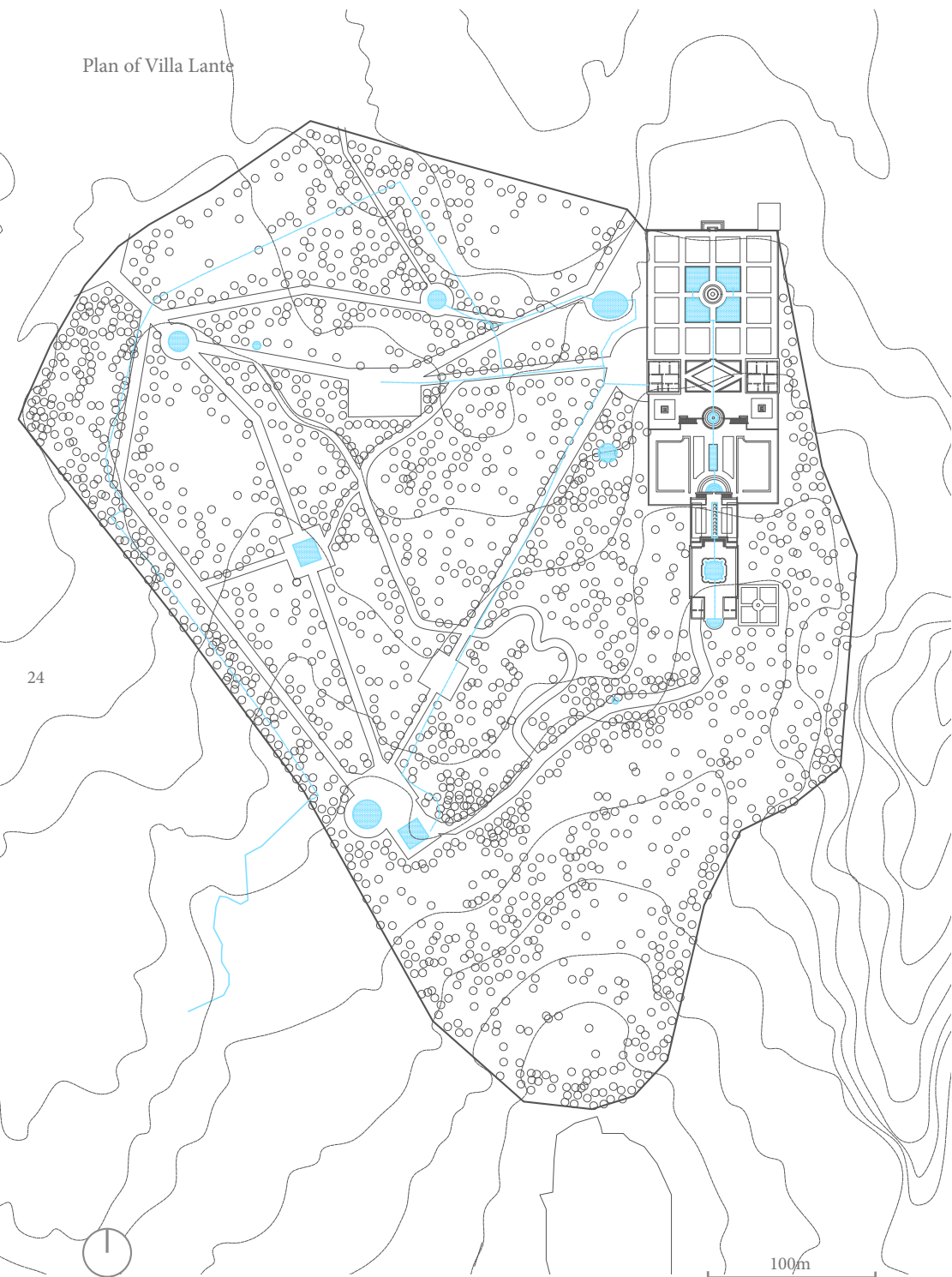
500m

Water source of Water Garden



500m

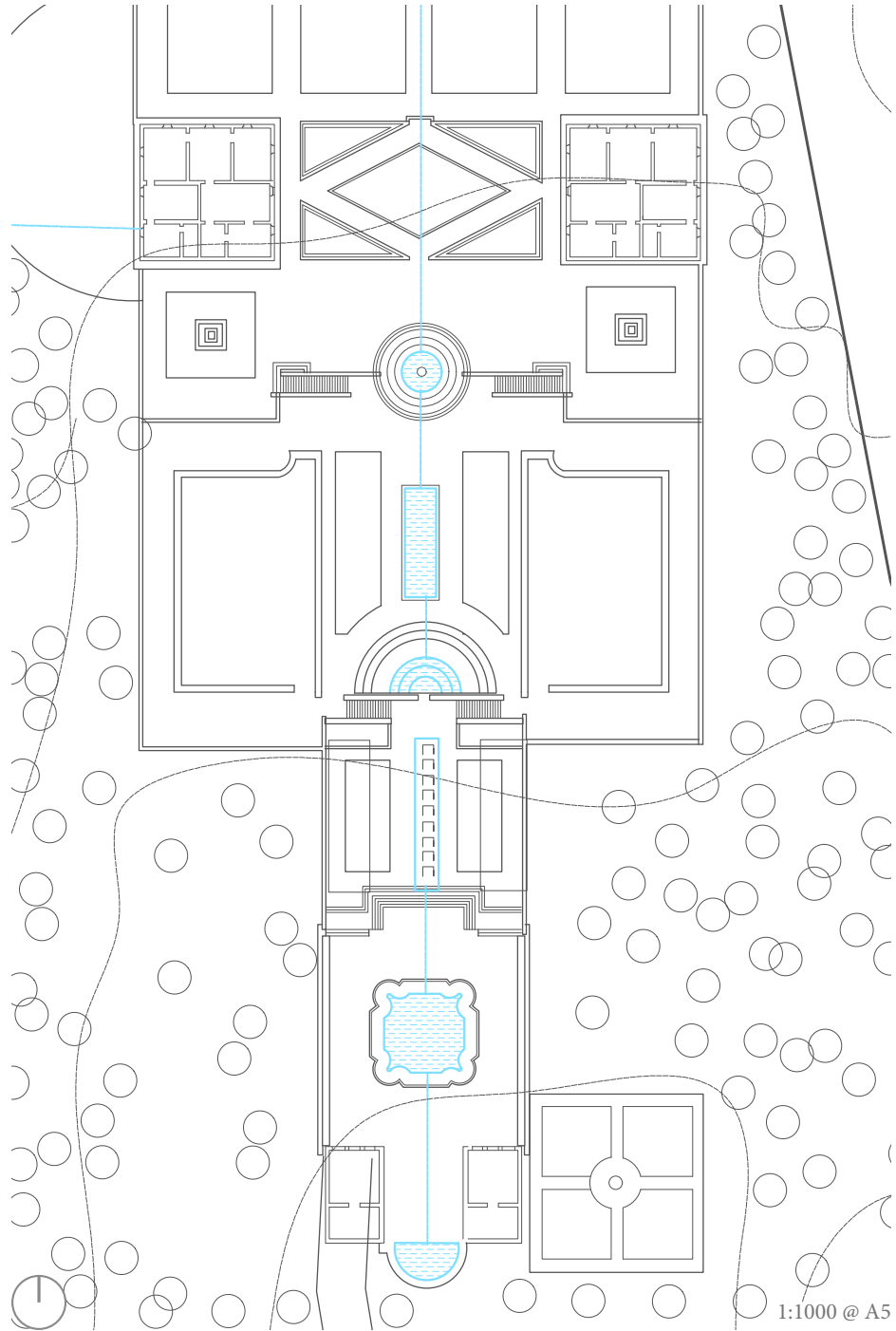
Plan of Villa Lante



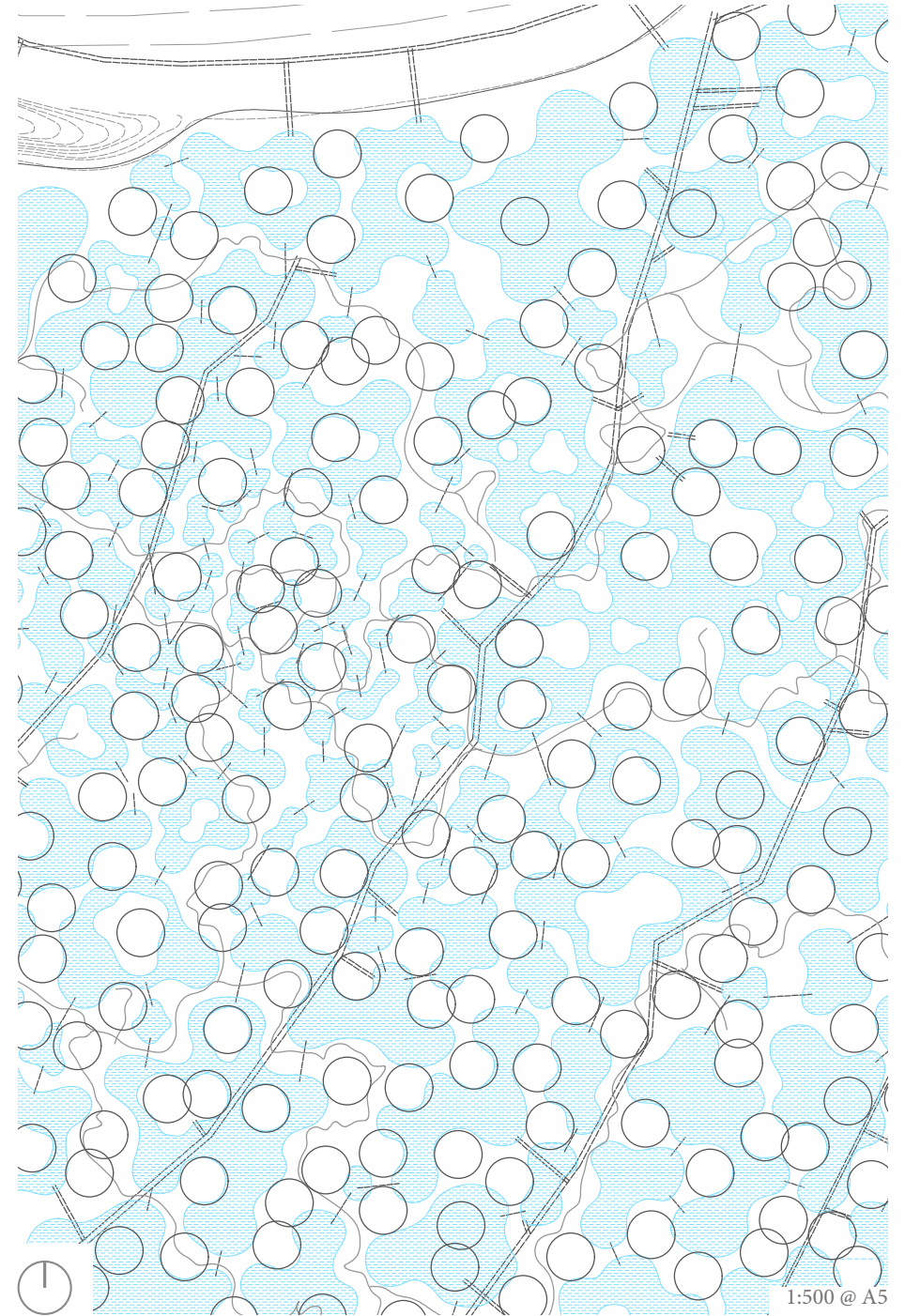
Plan of Water Garden

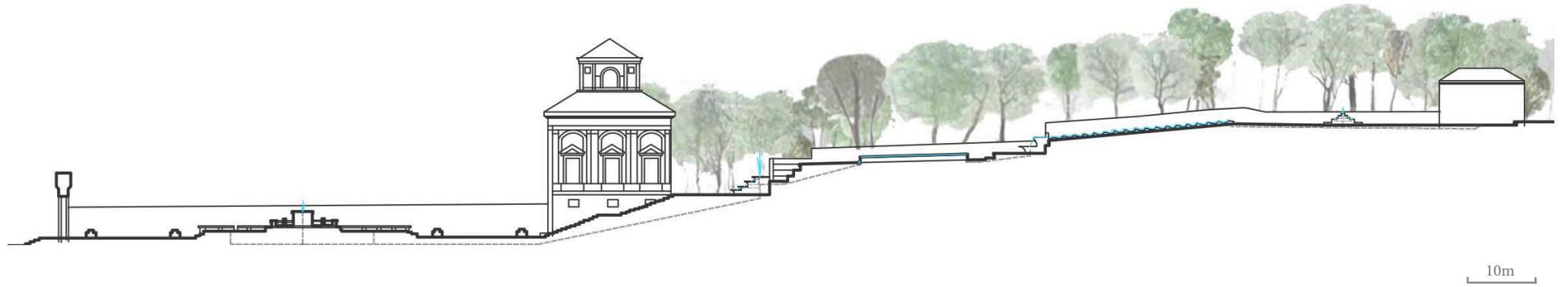


Detail plan of Villa Lante

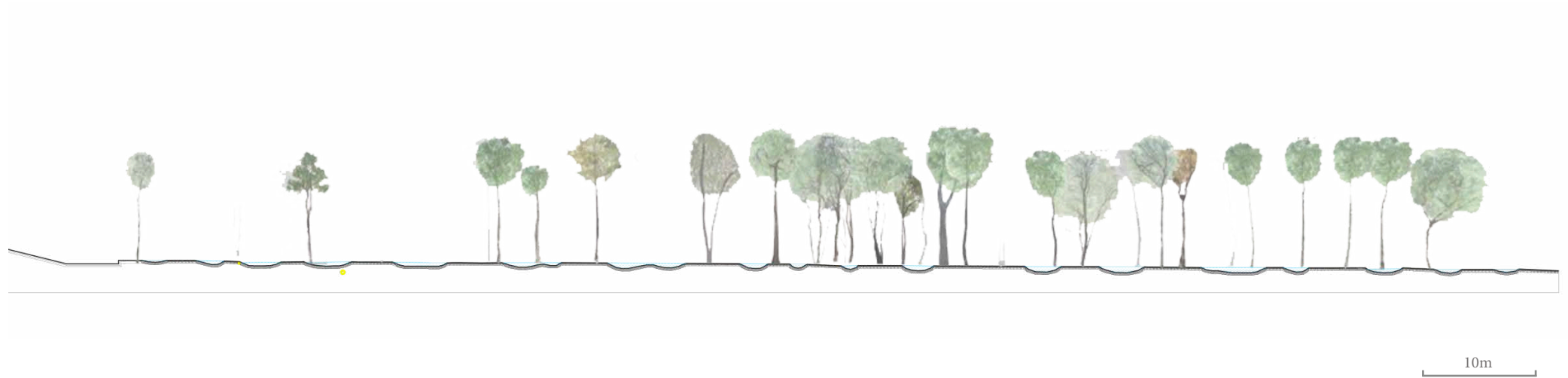


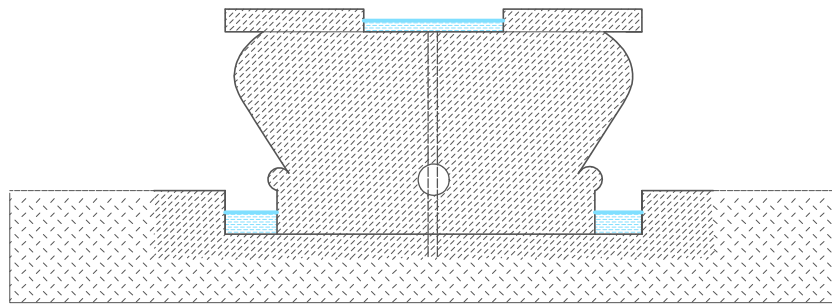
Detail plan of Water Garden



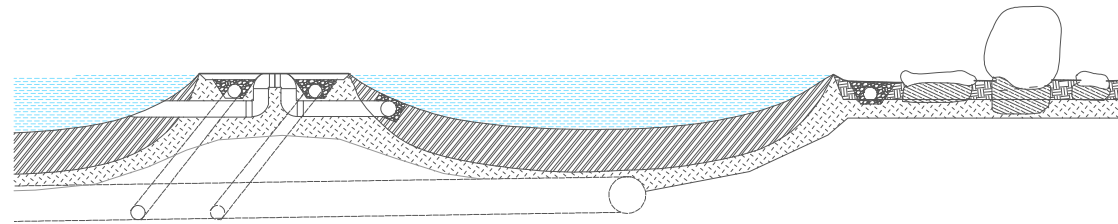


28





1:30 @ A5

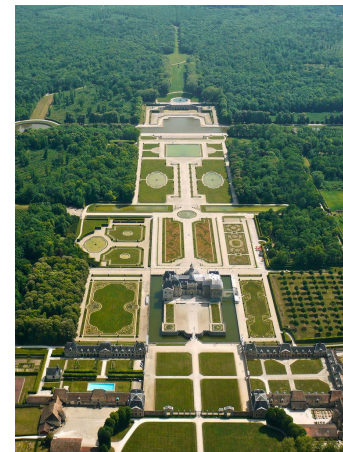


1:50 @ A5

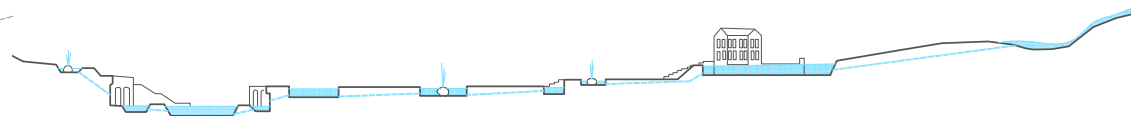
Other examples of water gardens



Vaux le Vicomte



The château Vaux-le-Vicomte and its formal gardens were constructed in the valley of a stream, which runs diagonally through the garden, and the valley of a river, which runs across the garden. Nature is here architecturally controlled, laid out and designed in a representative fashion. In this gardens, the large reflecting bodies of water reinforce the contrast between flatness and relief. From the edge of the garden, the stream was channelled underground. In the woods there are several reservoirs filled with water from the stream and other sources, which provide a constant supply of water for the garden. All the water finally converges in the Grand Canal and flows away via the river.¹



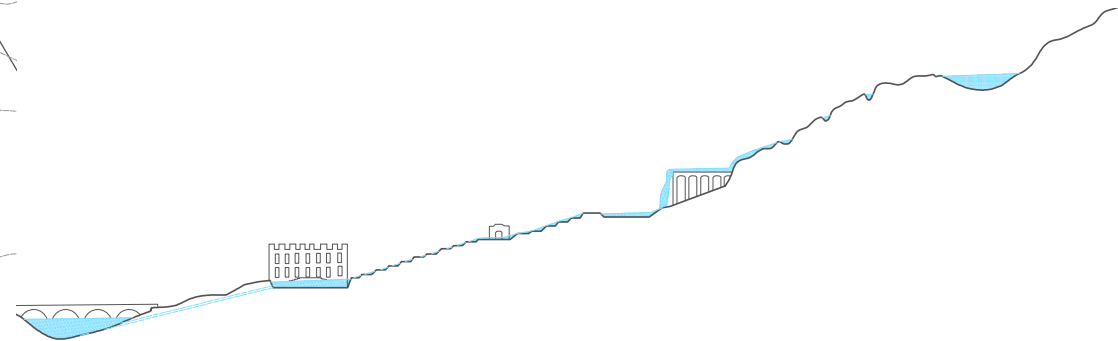
¹ Bobbink I. And Leon S. (2013) "Water inSight : an exploration into landscape architectonic transformations of polder water", Delft, Netherlands:TU Delft

Chatsworth House

Chatsworth House



The house and gardens were built from the 17th century onwards in the valley along the steep banks of the river. The wet valley area was drained by excavating fish ponds, as can still be seen in the large water basin in front of the house, which is part of the garden design. The water basin is cut into the gently rolling landscape, creating, from the perspective of the house, a vista that extends into the valley. The basin formalises the flatness of the valley. Water is channelled from the high plateau to the fountain via a system of pipes with valves that increase the water pressure. One discovers all these elements of the water composition while walking through the garden. The water level is controlled through drainage. The water is collected in small lakes, reservoirs that supply the water features in the garden.¹



¹ Bobbink I. And Leon S. (2013) "Water inSight : an exploration into landscape architectonic transformations of polder water", Delft, Netherlands: TU Delft

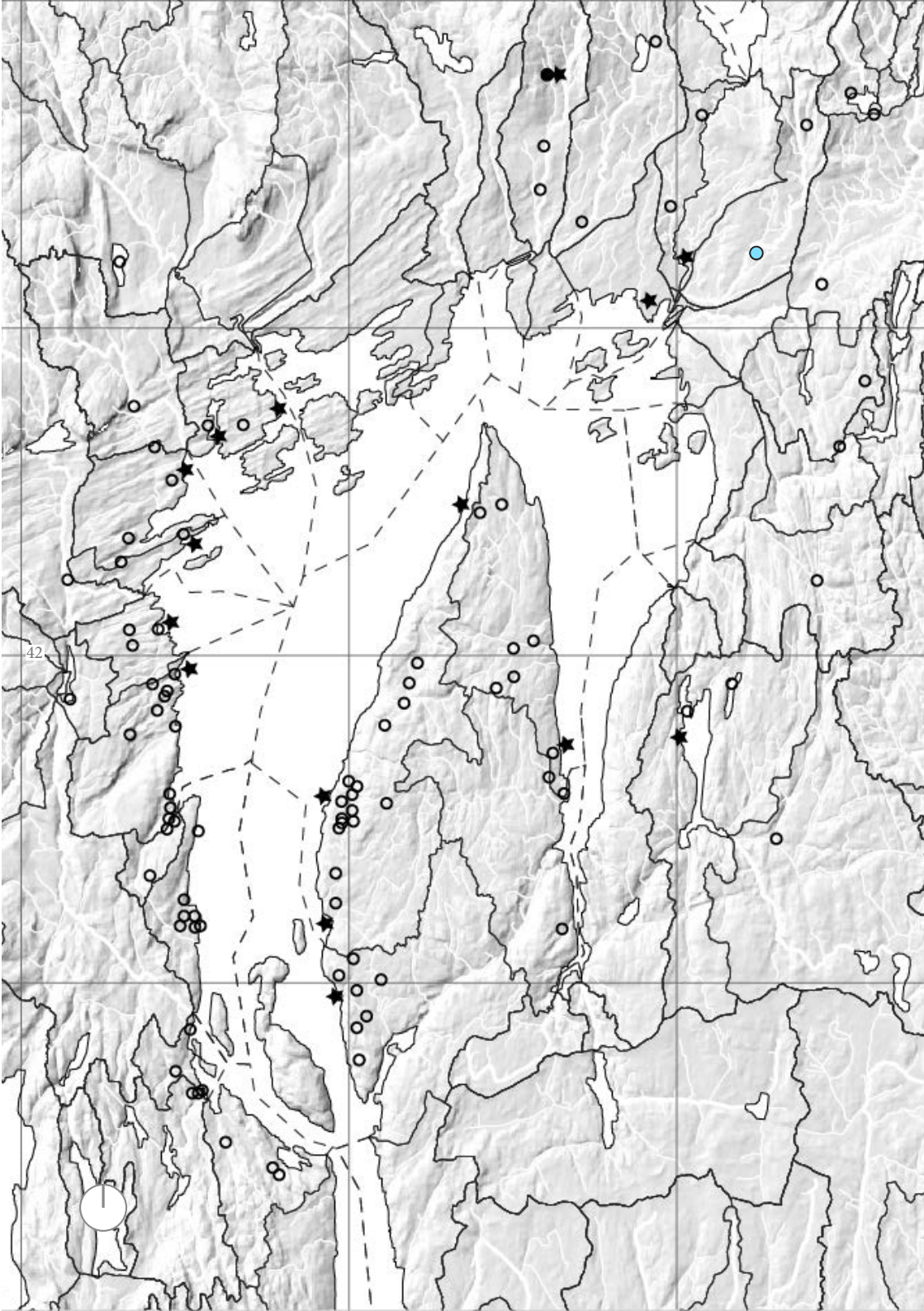
According to my research topic I was looking for the “techno-nature” in Oslo region, with where I could apply the principles of the *Water Machines* which I leant from previous examples.

Waterways in Nordmarka



“With the introduction of the saw-mill around 1500, timber production and export to Europe increased (e.g. the Netherlands). At first, saw-mills were spread in the forest and located to the areas where the timber was taken out, but in 1600s, the saw-mill activity was centralised and moved to the rivers Lysakerelva and Akerselva south of Nordmarka. These mills needed a lot of timber, and floating became necessary to transport timber from the forests. Several dams were built, and most waterways and lakes in Nordmarka were regulated. This allowed harvest of timber even up north, as the timber could be floated to its destinations, Bogstadvannet and Maridalsvannet, in the south. The two most important water-ways for floating were the ones going from Storflåtan to Bogstadvannet and from Bjørnsjøen to Maridalsvannet.”¹

1 Hertzberg M. (2016) ” *Local pollen analysis in a boreal forest setting – vegetation and landuse history at the summer farm Finnerudseter in south-eastern Norway*” NMBU -Norwegian University of Life Science



Ice Cube production

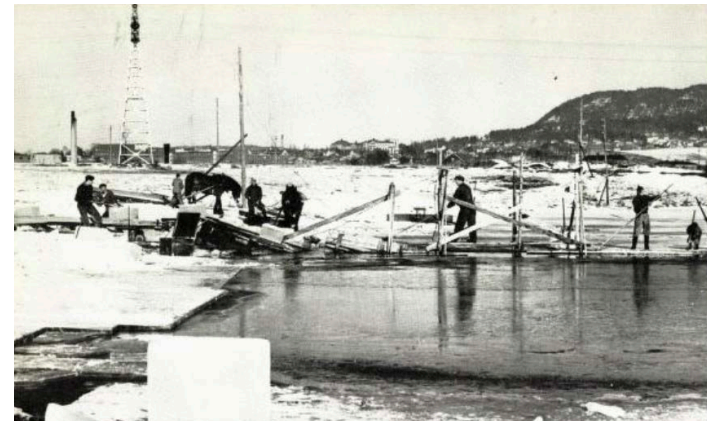


Another possible “techno- nature” was one of the former ice ponds build as a part of ice cube production in 19 and 20 century in Oslo. The Ice wasn't simply harvested goods that were manufactured in a complex production economy. At the turn of the 19th century, Norway exported more than 1 000 000 tonnes of ice each year, with vessels going to Northern Europe, the Mediterranean, Constantinople, Africa and even as far as India. To meet the growing demand for natural ice for export, creeks were dammed and ponds constructed. Hovindammen seemed to be the perfect site.

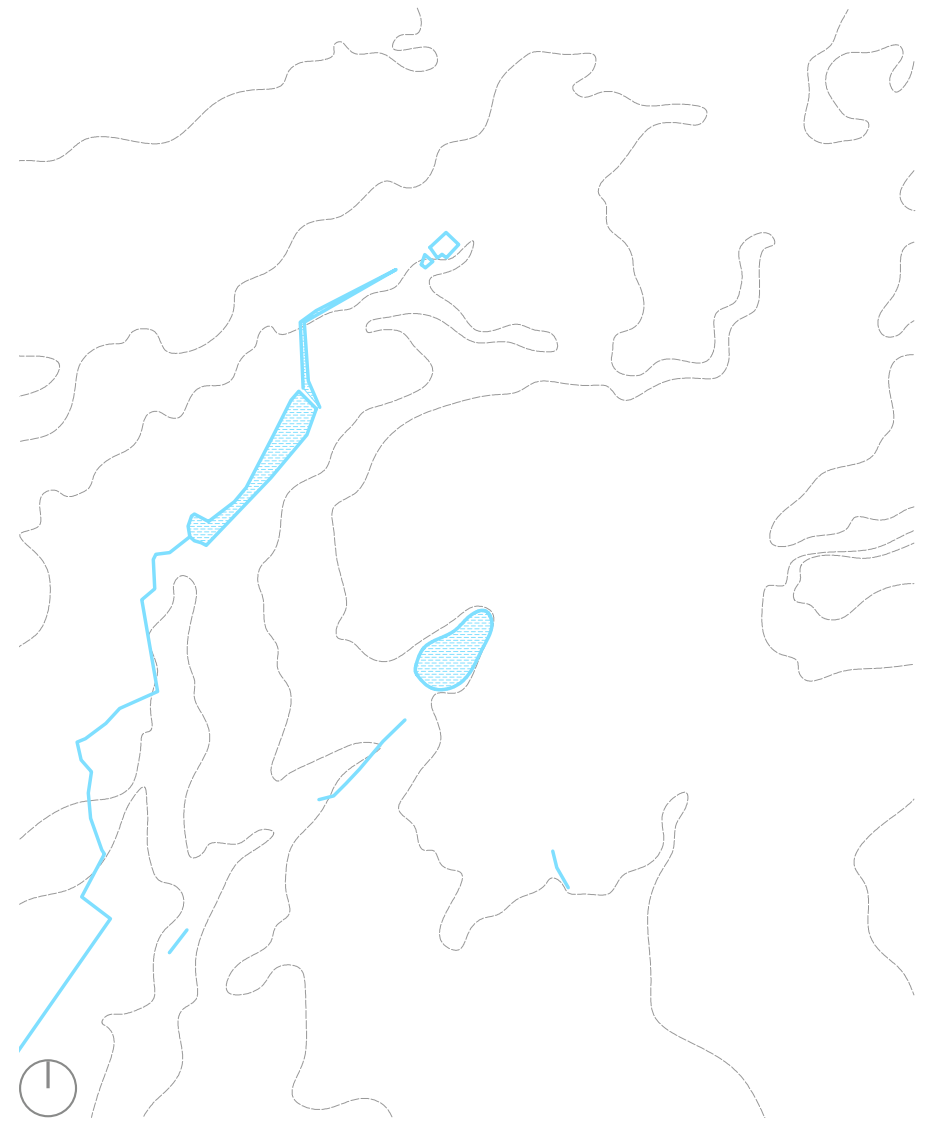
- 1 Cutting ice in the spring - Anders B. Wilse / Oslo Museum
- 2 Cutting ice at Gjersjøen, 1932 - Henriksen & Steen / Nasjonalbiblioteket
- 3 Studio ON ICE - Ice Ponds and Ports in Oslo Region (<https://www.are.na/block/7407408>)

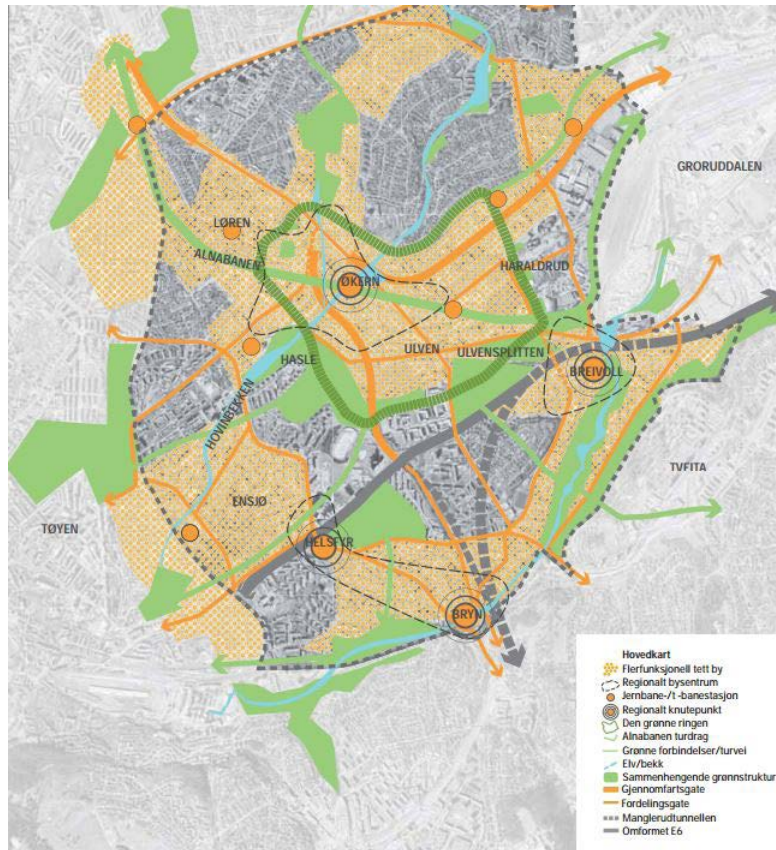
Hovindammen

During the highest production of ice, there were created three connected damms. The ice was harvested from this pond until late 50s for local use but when refrigerators and freezers gradually became common, also local business gradually disappeared. Streams were piped and in Hovindammen case also 2 dams. The remaining reservoirs are today very often perceived as natural lakes, especially in the Nordmark area.



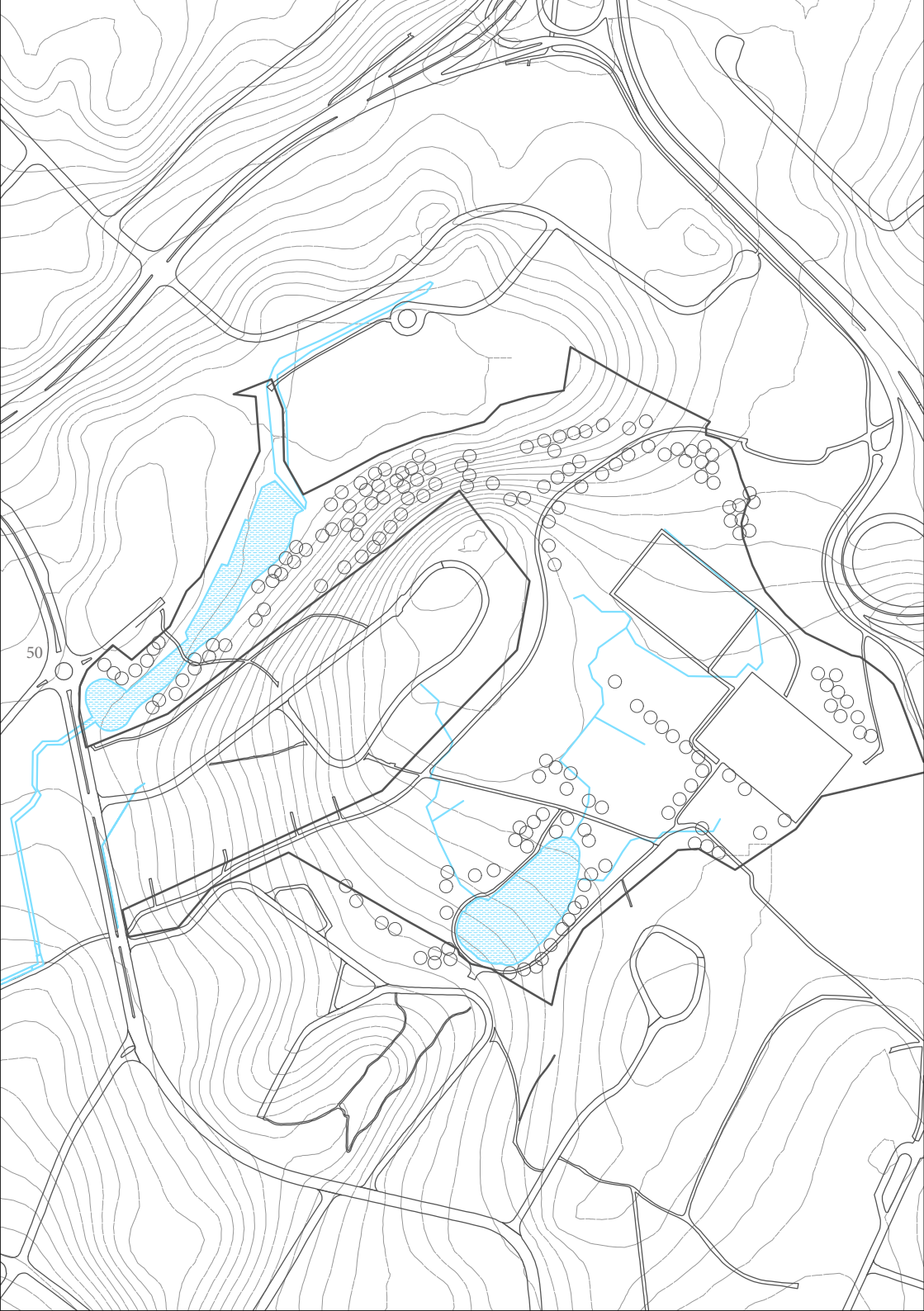
- 1 Cutting ice at Hovindammen, 1950s - Leif Sand / *Oslo og Akershus i nær fortid*
- 2 Cutting ice at Hovindammen, 1950s Leif Sand /
- 3 Piping of the stream Hovinbekken, 1959 / *Arbeiderblader*





Now the area of Hovindammen is waiting for new development, which will come with the strategic plan for Hovinbyen. Hovinbyen is being transformed from being an area characterized by large storage and industrial areas to becoming an attractive urban area with many new homes and jobs, as municipality webpage saying. Hovindammen is part of the suggested green ring.





Diploma approach

My site is the completely artificial environment with the urgent need of change the water management because the only water supply of pond goes from the surface water and due to neighbouring high way, it is polluted water. The original stream is nowadays still piped.

The principles of Water Machine are perfectly suitable for this situation but also could bring to the area the aesthetic and architectural value which is missing there right now. In the way how Picon suggested in the opening quote. I want to propose sequences that function with a harmonious combination of natural appearances and unavoidable artificiality.

Presented historical water gardens were always narrative. Renaissance garden used to tell us about looking back in the time in order to define the future, Chatsworth House narrative is about birth, life and death. Now, as Picon suggest we have to create the contemporary landscape narrative with the dimension of treat and education if it wants to contribute to making citizen fully responsible for the choices they make. Because water is indeed a collective problem today.

Schedule of the diploma semester

3 WEEK - 18.1-24.1 - Start of SEMESTER

Analysis of site
Site visit / Drawing actual situation - plans and sections / dendrology survey / water flow of the area
Developing Concept
Contemporary water narrative / Technical possibilities of water management

4 WEEK - 25.1-31.1

Analysis of site
Site visit / Drawing actual situation - plans and sections / dendrology survey / water flow of the area
Developing Concept
Water narrative in Hovinbyen

5 WEEK - 1.2-7.2

Developing Concept
Water narrative in Hovinbyen / Program

6 WEEK - 8.2-14.2

Developing Concept
Water narrative in Hovinbyen / Program

7 WEEK - 15.2-21.2

Developing Concept / Preliminary Design

8 WEEK - 22.2-28.2

Concept / Preliminary Design

9 WEEK - 1.3-7.3

Design

10 WEEK - 8.3-14.3

Design

11 WEEK - 15.3-21.3 - THE FIRST INTERIM PRESENTATION

12 WEEK - 22.3-28.3

13 WEEK - 29.3-4.4

14 WEEK - 5.4-11.4

Preliminary layout of submission and exhibition

15 WEEK - 12.4-18.4

Preliminary layout of submission and exhibition
Presentation

16 WEEK - 19.4-25.4 - THE SECOND INTERIM PRESENTATION

Preliminary layout of submission and exhibition
Presentation

17 WEEK - 26.4-2.5

18 WEEK - 3.5-9.5

19 WEEK - 10.5-16.5

20 WEEK - HANDS IN 19.5

List of drawings

Larger situation plan of waterflow of the area - 1:10000

Strategy on a focus area 1:5000

Plan 1: 1000 /1:500

Sections of focus area 1:5000

Sections of interventions 1:500

Details 1:50 (1:20) / Detail sections 1:50 (1:20)

Digital mode

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Villa Lante

E-mail conversatin with Villa Lante (2020): drm-laz.villalante@beniculturali.it

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Artbiotop Water Garden by Junya Ishigami

E-mail conversation with Mieko Hirabayashi from Artbiotop hotel resort (2020) - mhirabayashi@nikiresort.jp

GA Document : Global Architecture. (n.d.).

Stunning Japanese Landscape. The water garden by Junya Ishigami (<https://www.metalocus.es/en/news/stunning-japanese-landscape-water-garden-junya-ishigami>)

Junya Ishigami presents Art Biotop Water Garden (https://www.youtube.com/watch?v=3eJ-1dL7Tkq8&ab_channel=TheWorldAround)

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Hovindammen

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