Forming Welfare Waterscape

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This project develops an architectural approach for investigating relations between vegetated structures and the urban watersystem. The aim of the research is to explore methods for discussing water balance as a qualitative parameter for the structural and spatial organisation and planning of urban landscapes.

The south western region of Copenhagen is an exemplary showcase of suburban landscape shaped by the ideas of the post-war welfare society. The Western Forest (1500Ha) was gradually planted since 1967 as a recreational forest and forms a part of the green wedges of the capital region.

The foundation of the Western Forest is a flat landscape with rich agricultural soil divided by regional traffic lines. During heavy rainfall the forest is flooded damaging the growth of the trees. To date, the area has been kept dry by old agricultural drains, but these are gradually being destroyed by the roots of the trees. Older forests north of Copenhagen grow in an undulating terrain that provides natural drainage. The future development of the recreational Western Forest on this rich agricultural clay-based soil calls for the deliberate reconsideration of water's role within this landscape . Any future structural principles for the forest must be flexible in order to integrate changes over time—in this case increased amounts of rain. The proposed development strategy consists of two simple interventions to makes the landscape comprehensible for visitors: the forest demarcation pathway and the embankments.

The terrain is characterized by subtle contours and artificial soil formations constructed of surplus soil and garbage due to suburban expansion in the 1970's. Building upon the tradition of "forming" the landscape, the proposed embankments add to the assemblage of existing cultural traces. Each of the embankments is a response to its specific terrain and water management function. They are divided into four categories which define their construction and the shaping of the soil. As contrasting elements in the forest, the embankments are intended to accentuate new landscapes while functioning to both divide and bridge the terrain, influencing movements and the accessibility of the forest-scape.

The storm water runoff from motorways and impermeable surfaces from adjacent urban areas is polluted, and must be collected and cleaned before being redirected back into the landscape. The existing stream receiving the water needs to be protected from erosion caused by the force and flow of water during extreme rain events. Storage and the gradual supply of flowing water during the year will enhance biological value, while a series of purification basins form a sequenced landscape of varied water surfaces and vegetated textures. The forest is intended to be transformed into a natural storm water-treatment system that simultaneously functions as a semi-urban recreational park.

The Water and embankments reveal a story about the Western Forest as a significant landscape and the conditions through which it functions. The changing weather and fluctuating water is the attraction. When the water has evaporated, the embankments remain as landmarks for the rain and generate expectation for its visitors.

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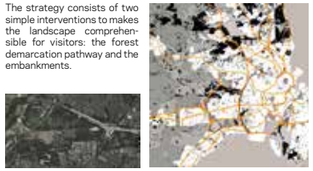


The south western region of Copenhagen is an exemplary showcase of suburban landscape shaped by the ideas of the post-war welfare society. The Western Forest (1500Ha) was gradually planted since 1967 as a recreational forest and part of the green wedges of the capital region.

The present structure of the forest is a mosaic of monocultural fields. The dream from 1967 was open recreational fields between formations of forest.

A new pathway on contourline 21 draws the border between the dry forest and a new wet part of the forest.

Preserved drained dry forest

Adapted flooded wet forest

The embankments function as both dividers and bridges that influence movement through the forest-scape.

Forest demarcation pathway:
The long major walk between the two types of forest.

Embankments paths:
The shorter routes that describe the different waterscapes

Swamp paths:
A series of bridges, walkways and ropes in the new forest

The terrain is characterized by subtle contours and artificial soil formations constructed of surplus soil and garbage.

Nuanced subtle terrain movements

Artificially shaped elements on the surface

The expression of the embankments relates to their specific terrain situation and water management function. They are divided into four categories in which their individual relation effects the shaping of the soil construction. As contrasting elements in the forest the embankments will accentuate new landscape spaces.

A: Terrain-embankments

B: Jewel ponds

• 2,5m high, 30m wide, 1:4 gradient, 400-700m long

• the embankments spans between two forms of terrain accentuating the otherwise weak terrain gradient.
• the embankment is wide and a path runs along the top where it is experienced as a bridge within the forest.

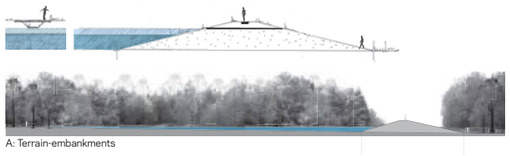
• 0,5-1,5m high, 10m wide, 1:4 gradient, 100-200m long

• the small jewel-embankments is placed in the dry forest as basis for new ponds.
• the jewel-embankment is narrow on the top. They will be suitable for movements and play - like small ramparts in the forest floor.

Dry Forest

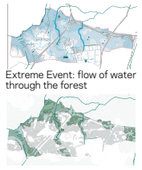
Wet Forest

B: Jewel ponds

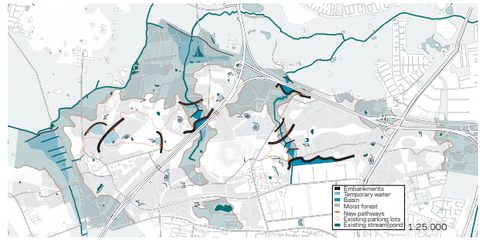


A: Terrain-embankments

Formations of the terrain provides different conditions for the water. .



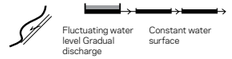
Potential waterscapes - sinks in the terrain



The storm water runoff from motorways and impermeable surfaces from adjacent urban areas is polluted, and must be collected and cleaned before being directed into the natural recipient. The existing recipient stream needs to be protected from erosions caused by violent pulses of water during extreme rain events. Storage and gradual supply of flowing water during the year can enhance biological value.

C: Reservoir

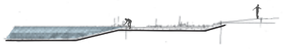
D: Purification basins



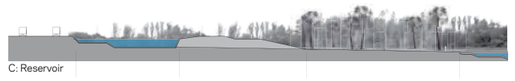
• 4m high, 30m wide, basin depth 4m, 1:4 gradient, 700-1200m long
• the reservoir is placed along the motorway and industrial area connected to points for discharge of stormwater runoff
• the volume will fluctuate but a water surface will always be present. Water can be discharged gradually by an adjustable port in the embankment

• 2,5m high, 18m wide, basin depth 1,5m, 1:4 gradient, 200-300m long
• the basins are constructed with an impermeable membrane to protect ground water from polluted sediment.
• The embankment is narrow with a pathway on the top. A terrased bank allows for acces to the water surface

A series of purification basins will form a sequenced landscape of varied water surfaces and vegetated textures. The forest has the potential to be developed into a natural storm water-treatment system while functioning as semi-urban recreational park.



D: Purification basins



C: Reservoir