

# Climateways Sponge City Concept





# Climateways

Climateways is a company compromised with sustainability focusing on sponge city concepts. To reduce the impact of climatechange and favoring the conservation of nature, we do not only develop our own durable products, we also develop individual urban and agricultural concepts.

Our task: Adapt the direct enviroment to climate change with innovative solutions modeled on natures example.



**Temperature control measures**



**Sponge City**



**Climateways**



**Watermanagement**



**Climatechange**



**Nature-based solutions**





Sponge City



# Sponge City

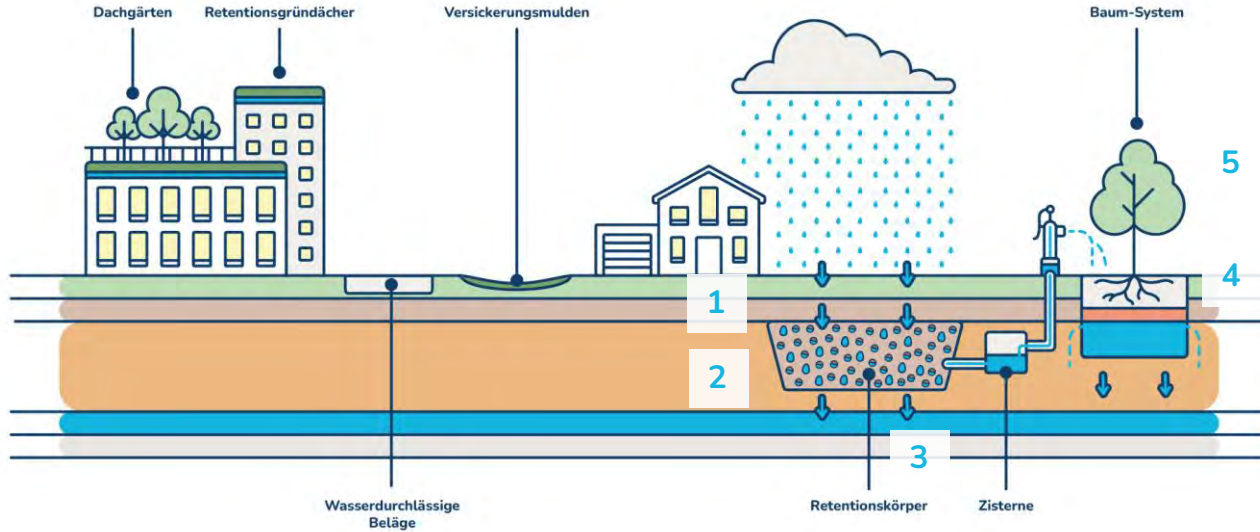
Urban-planning-concept: Dissipate of fallen rainwater in locally installed storage tanks, instead of channelizing and drainage.

## In Detail:

- Sustainable handling of precipitation (storage, utilisation, evaporation)
- Adaptation to the example of nature
- Long- and short-term effects
- Variety of possible Measures, that applied together have big impact on urban climate.
- Necessity of implementation in public spaces, and allso on private properties.



# Sponge City



1. Rainwater seeps away
2. Rainwater is temporary stored
3. Renewal of Groundwater
4. Reuse of stored Water
5. Evaporation cools the environment

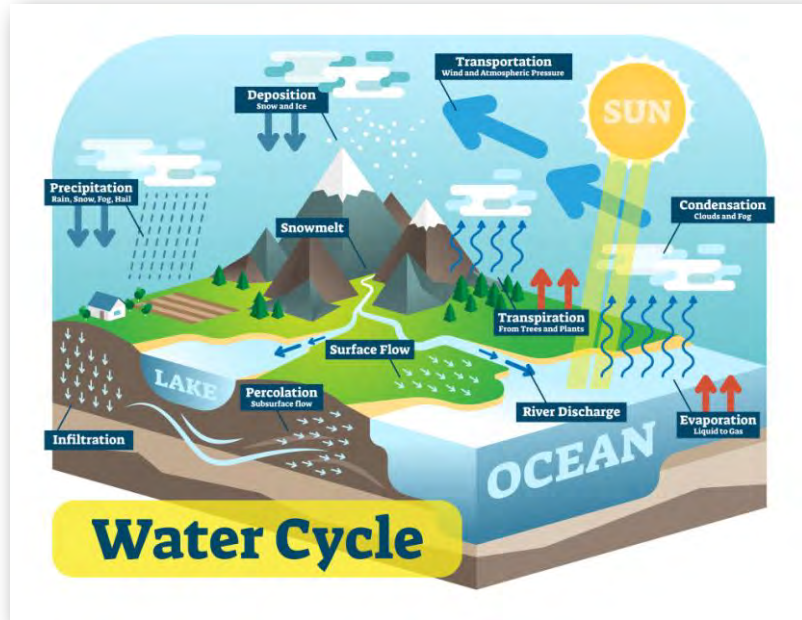


**Climate change**



# Circulation of water

## Natural circulation of water



## Sealed city





# Circulation of water

Urban water circle

## Climatechange

### Focused on Spongecity:

- Higher temperatures & more days of heat
- Repeating & more intensive precipitations caused by the upheating of cities and higher evaporation
- Draught periods
- Stormy weather situations
- Decreasing groundwater resources and water quality

### Consequences:

- Damage to infrastructures & humans caused by heavy rain events
- Decreasing of health caused by atmospherical pollution and ozone exposure
- Worsened living conditions caused by climate change consequences



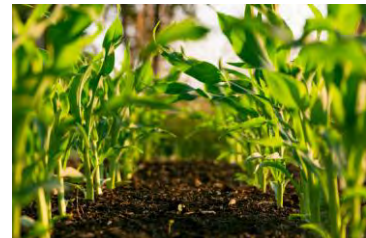


**Nature-based solutions**



# Solutions based on nature

- All of our products are made of natural materials
- Ecosystems are created or can be powered up
- Creation of spaces of wellness
- Reduction of climatechange consequences
- Including regional products
  - lower transport costs and CO<sub>2</sub>-consumption



## Watermanagement



# Sponge City Measures

Path coverings

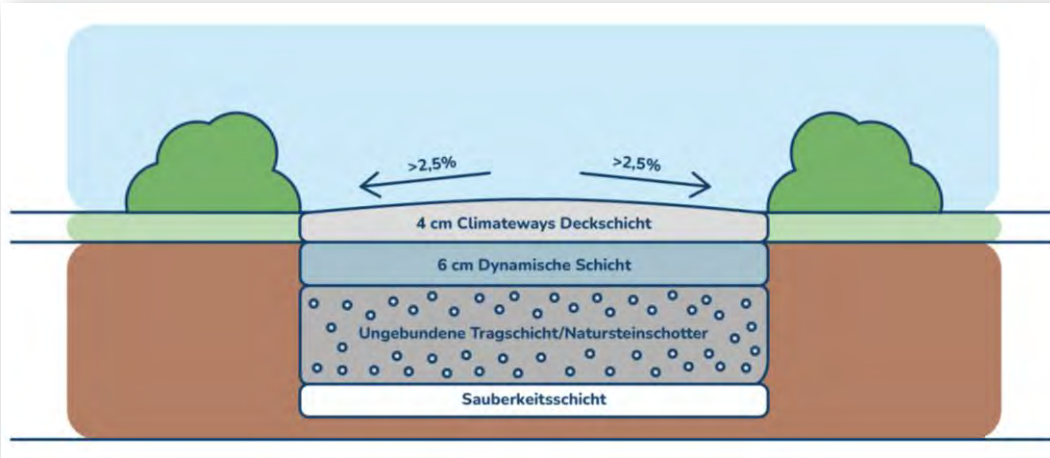
Common asphalt tracks with faulty construction



# Sponge City Measures

CW water-bound road surfaces

## CW Pavement coverings



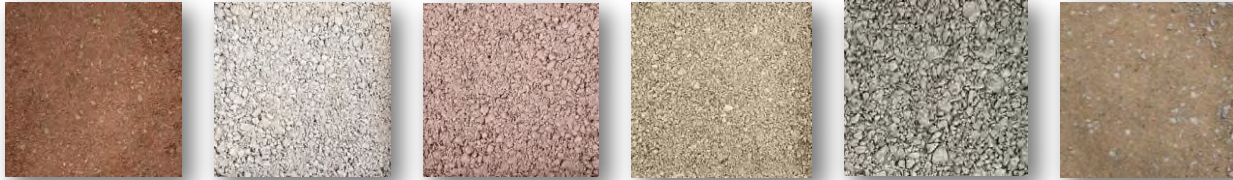
The covering layer is permeable and lets precipitation seep away from the surface. This effect reduces significantly the risk of washouts and puddling.

The dynamic layer is responsible for the watermanagement and the load-bearing- capacity.

With the help of the base-layer (gravel) the excess of water seeps into the ground and helps to stabilize the entire structure.

# Sponge City measures

CW water-bound road surfaces



## Properties

Pure natural materials

High shear strength

Dust reduction up to 90%

Easy to apply

Reduktion of upwarming

Use of regional materials

Reduktion of floods

Even on slopes with a gradient of more than 15%

Allways reversible

Follwing DIN 18035-5 FLL-Regulations (Germany)



# CW water-bound road surfaces

Project Heppenheim



## Details:

- Bike path made of regional and natural materialien
- 1600 m<sup>2</sup>
- High shear resistance
- Permanently reversible
- Supplies indirectly the neighbouring trees with water



# CW water-bound path surfaces

Project Heppenheim bike path



# CW water-bound road surfaces

Project Eichstetter quarry, Austria

Before execution



After execution



## Details:

- Pure natural regional material
- Made with our natural CW binding agent it can be used on slopes.
- High Shear strength
- Permanently reversible

# CW water-bound road surfaces

Parking spaces



## CW Path on a damaged part of a Parking:

Despite high temperatures and lack of precipitation: The path remains a damp CW-Path while the rest of the parking executed with conventional material is dry and dusty.

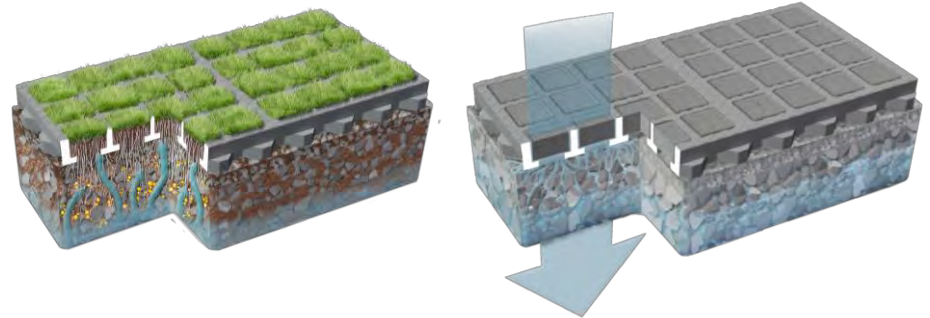
- Purely natural materials
- Reduction of dust up to 90 %
- Reduction of puddling and potholes
- High shear strength
- Permanently reversible

# Sponge City Measures

Climateways sustainable systems

## Characteristics

- 100 % decentralized infiltration is possible
- Infiltration of 33 liter/sec./m<sup>2</sup>
- Retention function 100 liter/m<sup>2</sup>
- Load capacity up to 60 t
- Compositesystem for flexible use
- Reduction of temperature on the surface
- 50 % less excavation hight with equal load distribution like with stone paving structure
- Enviromantally neutral

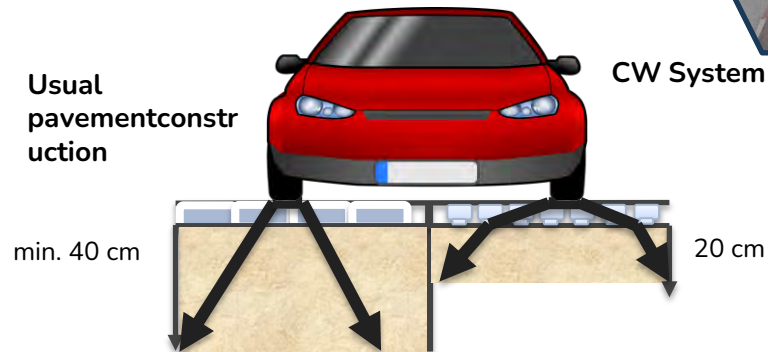


# Sponge City Measures

Climateways sustainable systems

## Application areas

- Parking
- Driveways
- Marshalling areas in logistics centers
- Roads



# Sponge City Measures

## Retentionssystem

## CW Retention system

### Advantages:

- Natural materials
- Water retaining
- Lightweight construction material
- Can be implemented in inner city and has multiple vielfältige uses on the surface – It's no competition for space, since it is located in the underground
- Supports during heavy rain events
- Dimensionally stable and pressure-resistant
- No maintenance or safety measures necessary



# Sponge City Measures

Retention system

## CW Retention system

Construction:



Use:



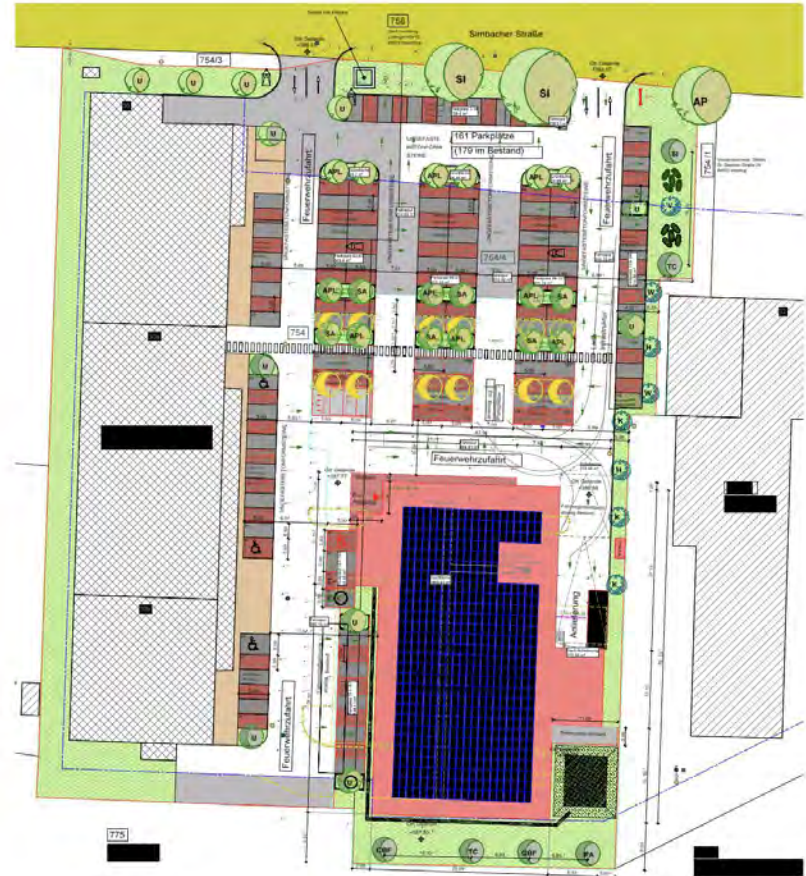
# Sponge City Measures

## Retention system

### Example: -Aldi Projekt-

#### Advantages:

- Area to be drained: 2880 m<sup>2</sup>
- Cost: 90.000 €
- Advantage: -Water for surface drainage is saved  
-Reuse of stored precipitation water
- Saves money: Precipitation-fees of around 21.000 € per year





# Heat precaution



# Sponge City Measures

## CW Retention-Green-Roof

### CW Retention Green Roof

#### Advantages:

- Reduction of flooding
- Promotes biodiversity
- Lowering of the lokal temperature
- Filters and binding of air pollutants and particulate matter
- CO<sub>2</sub>-Storage
- Heat- and cold insulation of the building
- Noise reduction and die lifespan of the roofskin doubles



# Sponge City Measures

## CW Retention Green Roof

### Construction:



- Suitable for extensive and intensive green roofs
- Water retention: 50-70 %



# Sponge City Measures

## CW Substrates

### Climateways Substrates:

- Treesubstrate
- Lawn substrate
- Roof substrate
- Gravel lawn

### Advantages:

- Purely natural & high-quality materials
- Improving Water storage ability
- Improving root growth
- Structurally stable
- Long-term supply of nutrients





Anny question?  
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