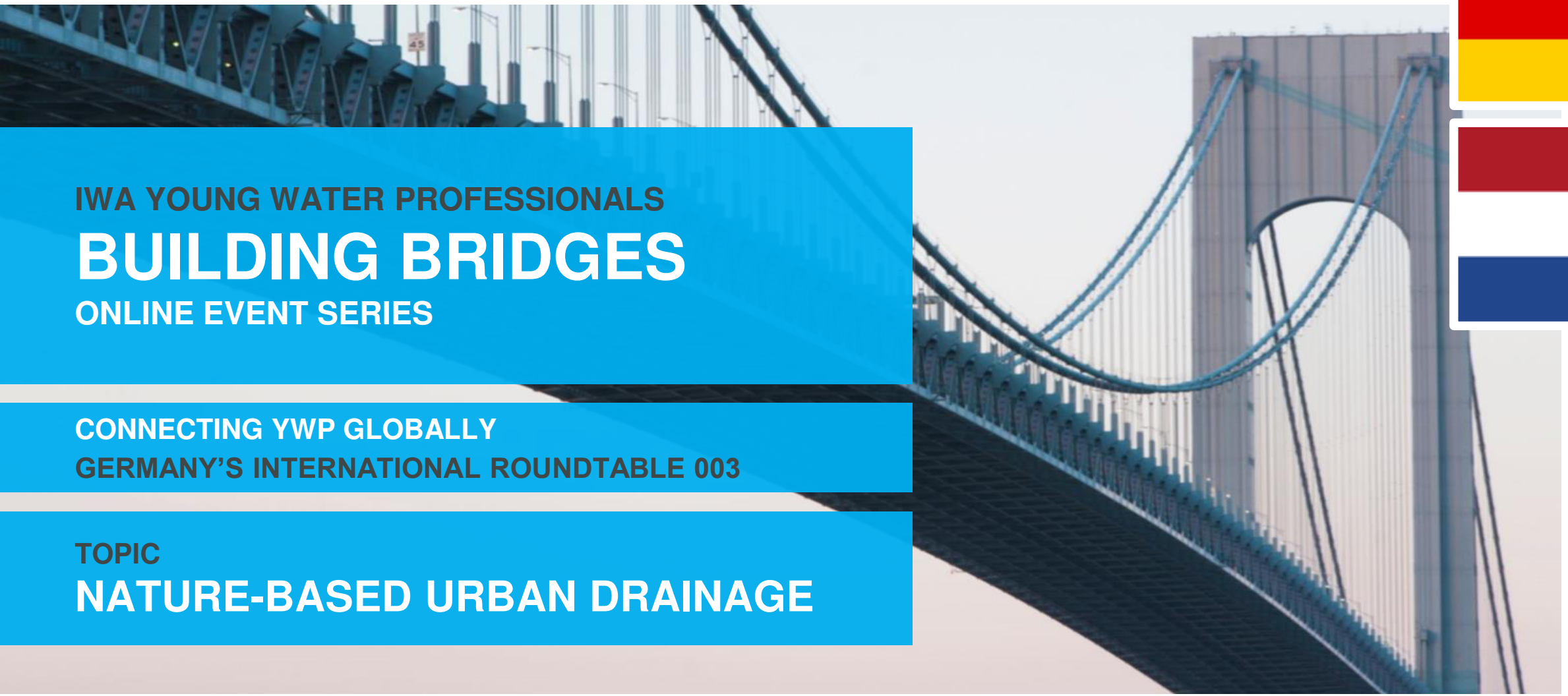
YOUNG WATER PROFESSIONALS GERMANY

the international water association



IWA YOUNG WATER PROFESSIONALS

BUILDING BRIDGES

ONLINE EVENT SERIES

CONNECTING YWP GLOBALLY

GERMANY'S INTERNATIONAL ROUNDTABLE 003

TOPIC

NATURE-BASED URBAN DRAINAGE

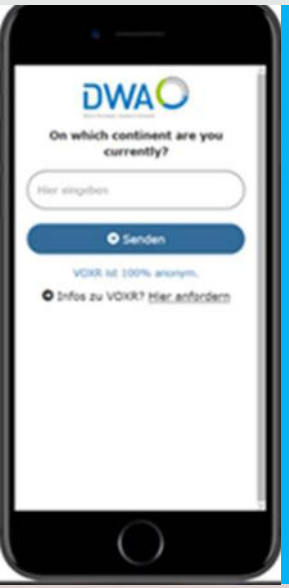
YOUNG WATER PROFESSIONALS GERMANY

the international water association

IWA YOUNG WATER PROFESSIONALS

BUILDING BRIDGES

ONLINE EVENT SERIES



TELL US ABOUT YOURSELF!

LINK VOXR: https://voxr.com/dwa

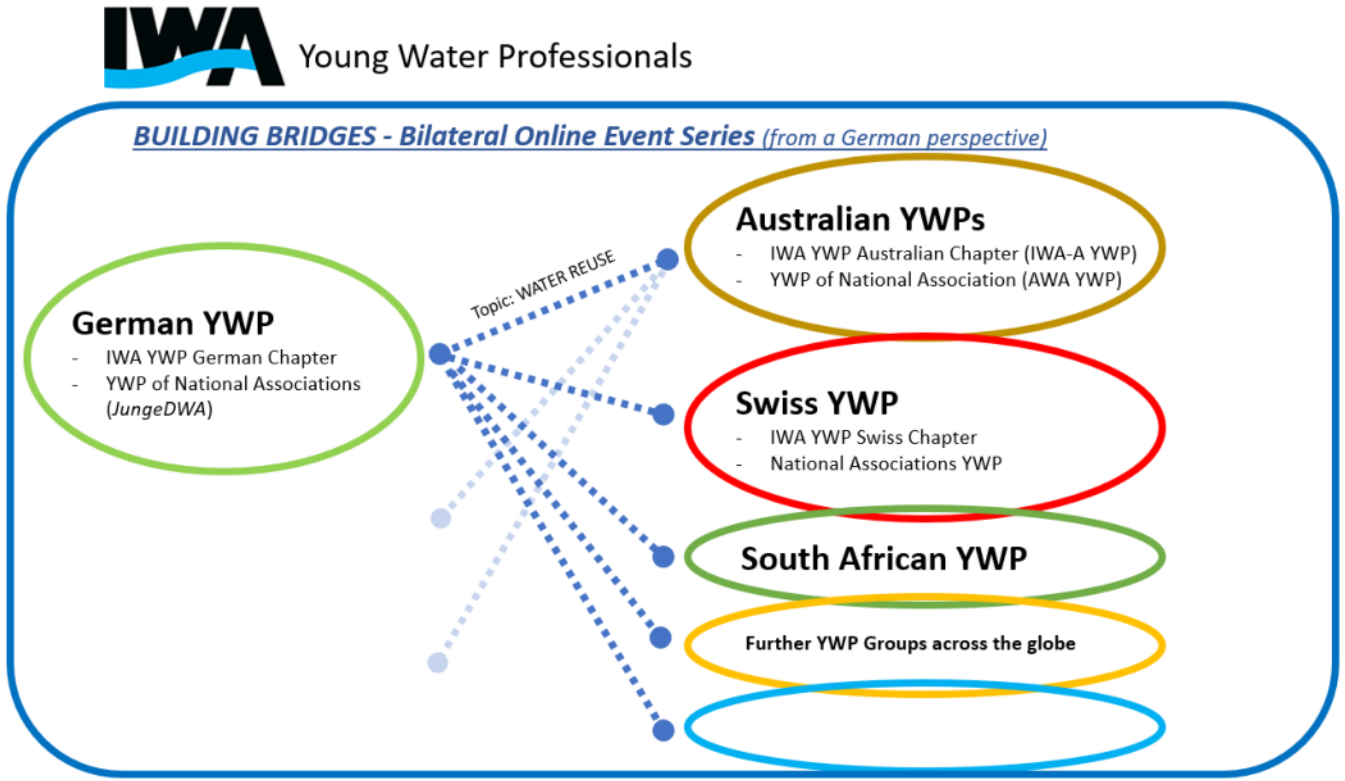
QUESTION 1:

In one word: What is your professional background (Ecology, Engineering, Geography, Economics, …)?

BUILDING BRIDGES ONLINE EVENTS

Concept in a nutshell

- International Roundtable of the German YWP
- Part of newly created **Building Bridges Online Event Series**
- Regular get-togethers (in English language, every 8-12 weeks) connecting YWP across the globe in **bilateral dialogue**
- Platform to network and **engage over a topic** relevant to both countries
- Platform **empowering YWP** to present insights and to **learn** from peers



INTRODUCING OURSELVES!

JUNGE DWA (YOUNG DWA)

DWA
Klare Konzepte. Saubere Umwelt.

Goals:

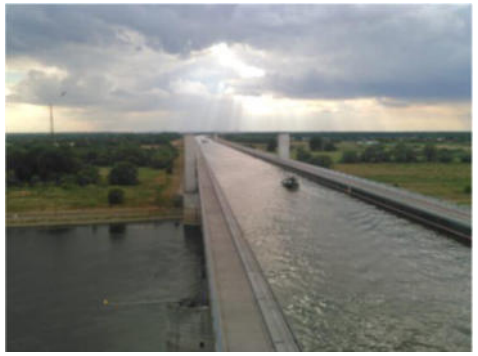
Connect

Exchange

Grow

INTRODUCING OURSELVES!

JUNGE DWA (YOUNG DWA) – GOALS



Connect - Roundtables

Exchange - Network Meetings

Grow - Circles & Inclusion

https://en.dwa.de/en/jungedwa.html

XING-Gruppe > JungeDWA

INTRODUCING OURSELVES!

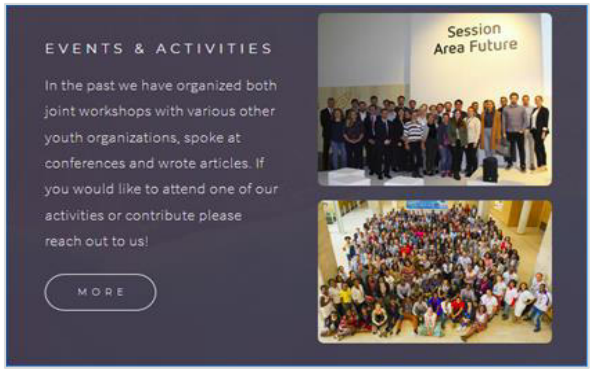
The IWA Young Water Professionals German Chapter (YWPGER)

We connect water professionals in Germany with the world and the world with Germany.

Our activities include, but are not limited to:

- Organisation of **roundtables** & network events
- **Publications** (national & international)
- **Representing** Germany abroad within IWA events and at international conferences
- **Connecting** with other IWA chapters

IWA the international water association YOUNG WATER PROFESSIONALS GERMANY



https://ywp-germany.carrd.co/

@YWP_Germany

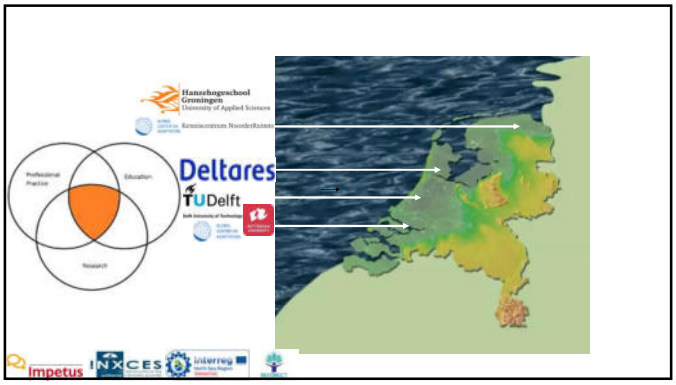
https://www.linkedin.com/company/ywp-germany/

GUEST SPEAKER

YWP NETHERLANDS

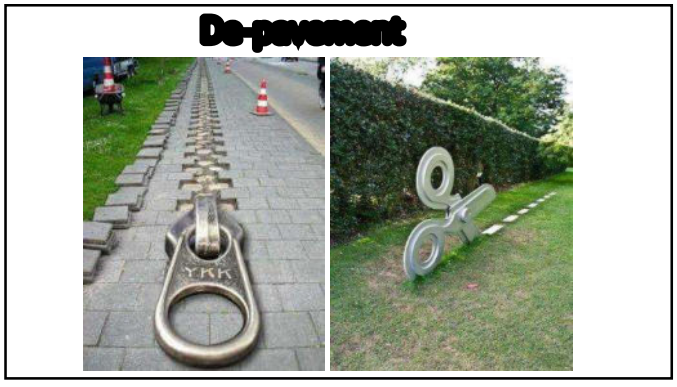
- **FLORIS BOOGAARD**
  Professor for Climate Adaptation / Researcher Global Center on Adaptation / Consultant, Deltares
- **SIDNEY STAX**
  Administrator Water & Sewerage, City of Nijmegen


CLIMATE CAFÉ
Climatecafe.nl
GreenBlue ClimateCafé: every Friday starting 29-1-2021
For students, young professionals and beyond!
You choose the topics!
Sharing a drink after!
Informal network

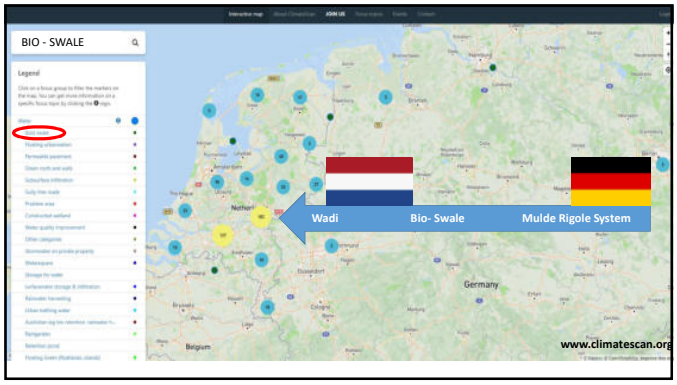

Hanzehogeschool Groningen
Deltares
TUDelft
Impetus


Floris Boogaard
Lector Ruimtelijke Transformaties
Hanzehogeschool Groningen • GCA • Deltares
https://vimeo.com/502980248

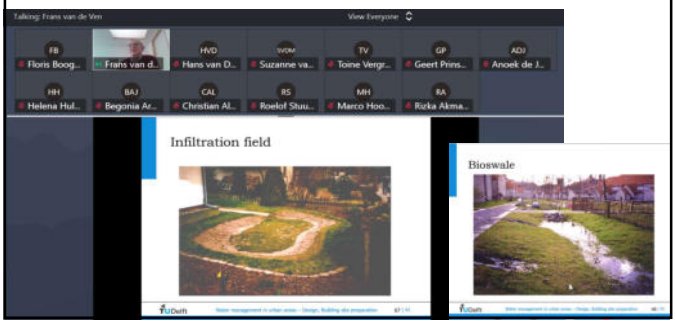

pavement

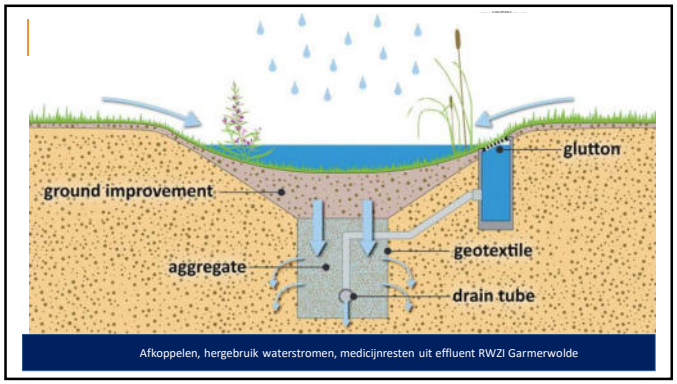

De-pavement

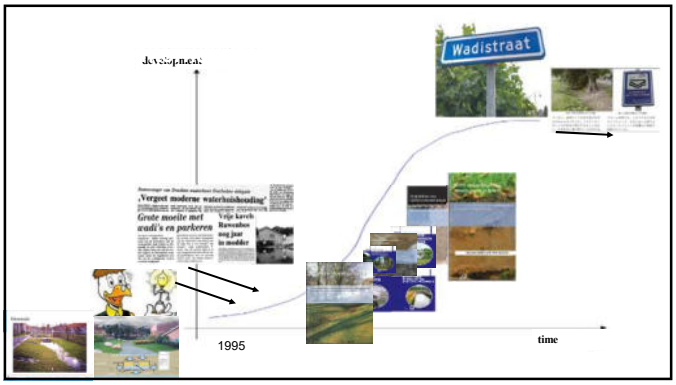

Groene infrastructuur, Amsterdam
(Doorgroeibare) verharding
Sheet flow Deventer
gevel tuintje
Speelplaats en waterberging
Participerend onderhoud Groenbeheer oplossingen Groningen
Tree box Zutphen
Groene rotonde Winschoten
Raingarden Nijverdal
Bio-filtratie Purmerend
Wetlands
Bodempassage



Earlier this week







From Germany to The Netherlands to Japan

But every country is different: International knowledge guidelines for SUDS design

Parameter	Unit	Recommended values Netherlands	Germany	United Kingdom	Belgium
Infiltration capacity	m/day	> 0.5	0.86 < Kd < 86.4	-	> 0.086
Distance ground water	m	> 0.5	> 1		
Thickness of filter soil	m	0.3 – 0.5	> 0.1 (average 0.3)		0.3 - 0.5
Area svable to drained area	%	5 – 10	> 7 (average 5 - 20)		5 – 10
Distance to houses	m	> 1	1.5 depth constr. zone		
Overflowing frequency	n/yr	1 to 2	0.2		0.2 - 0.5
Usable water depth	m	< 0.3	< 0.3	< 0.1	< 0.3
Spare capacity	m	0.1		0.15	
Time to empty	hour	< 24	< 24	retentiontime > 10 min.	< 24
Width of bottom	m	> 0.5		0.6	0.5 - 1
Width of water surface	m	4			
Slopes	-	1 : 3 or less		1 : 4 or less	1 : 3 or less
fraction of humus in toplayer	%	3 - 5	2 - 10		
Max velocity	m/s			1 - 2	

"richtlijnen: de mooiste wadis zijn die, die van die richtlijnen afwijken"

SUDS in the UK



My hobby


Find inspiration on ClimateScan.org

mapping **Nature-Based Solutions** Citizen Science ClimateScan:
https://www.mdpi.com/2073-445X/10/1/5

www.climatescan.org, twitter: Climate_Scan

15 Swale Ruwenbos Enschede

13 Bio Swale Harkstraat Amsterdam

9 Swale Haren https://vimeo.com/502980248

7 Swale Paddepoel Groningen

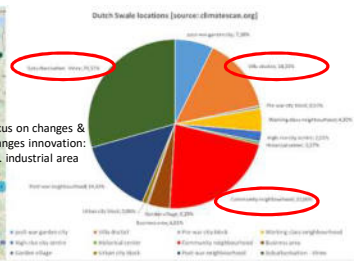
4 Bio swale Alkmaar

Using typologies:
Dutch Neighbourhood typologies

Dutch neighbourhood typology	Period	Features
Urban city block	before 1930	no front garden nor green skirting, 4-5 layers
Pre-war city block	1900-1940	occasional front garden, 3-4 layers, wider streets than urban blocks and occasional green skirting
Garden village	1910-1930	spacious front and back garden, 2-3 layers, ample parking space,1930s architecture, limited public green and rarely street trees
Working-class neighbourhood	1930-1940	no front garden, little public green, 2-3 layers, single-family units
Low-rise post-war garden city	1945-1955	open building block with ample green, 2-3 layers, single-family units
High-rise post-war garden city	1950-1960	open building blocks with ample green, 4-6 layers, apartments, storage on the ground level
Post-war neighbourhood	1940-1990	front and back garden, 2-3 layers, single- family terraced houses, semi-detached or detached
Community neighbourhood	1975-1980	single-family unit with front- and back garden, meandering street pattern, courtyards, wide green skirting around the neighbourhood
High-rise city centre	1960-present	more than 10 layers in grid formation
Suburbanisation - Vinex	1990-2005	single-family unit, terraced, semi-detached or detached apartments

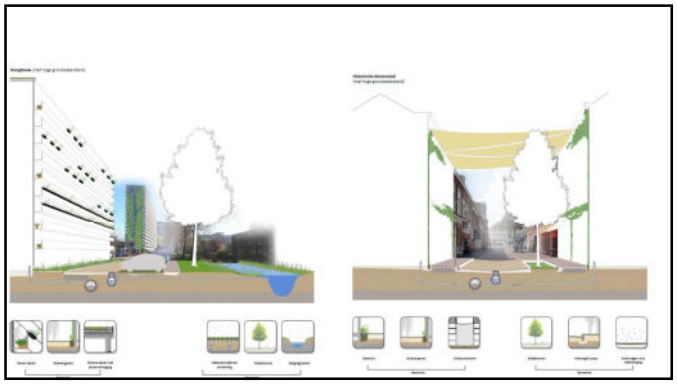
Over 500 districts with Swales spread out over The Netherlands (also lower parts that are below sea level) on large scale implemented after 1998.

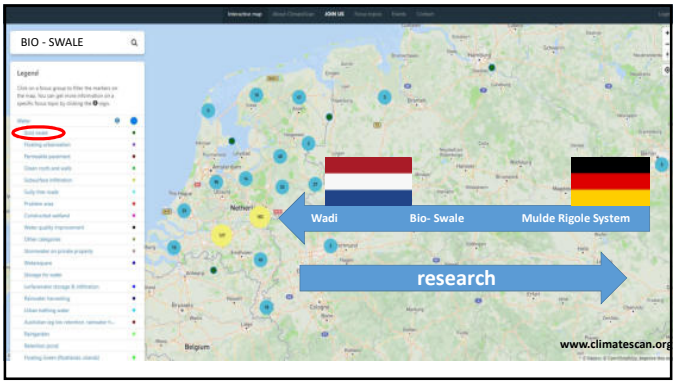
over 500 Dutch Swale implementations categorised in neighbourhood typologies



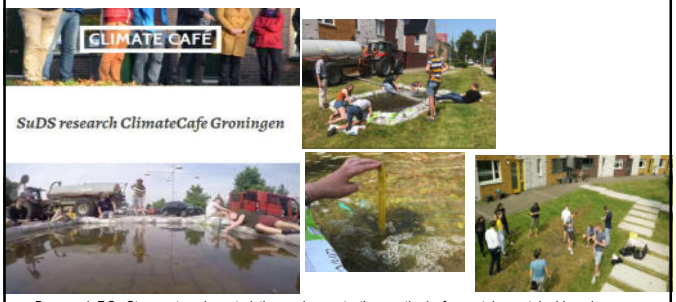
Focus on changes & changes innovation: e.g. industrial area

Source (not published yet): Book Handbook of Climate Change Management (Editors: Walter Leal Filho, Johannes M. Luetz & Desalegn Yayeh Ayal): Research, Leadership, Transformation" Chapter *Analysing Climate Change Adaptation in Africa, Asia and Europe with the citizen science ClimateScan Platform , 2020*





Climatecafe.nl



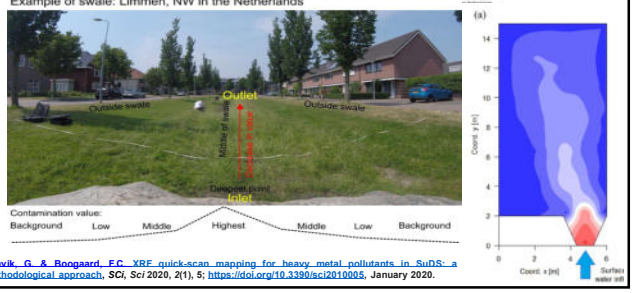
Boogaard F.C. Stormwater characteristics and new testing methods for certain sustainable urban drainage systems in The Netherlands. Delft 2015.

Bio swale hydraulics

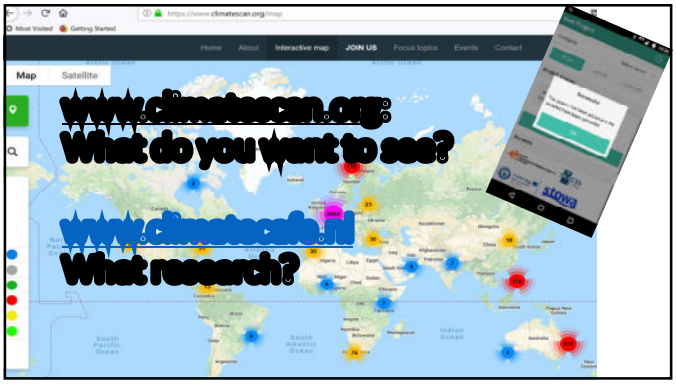
Figure 5. The full-scale infiltration test with a tank truck as water source, was executed repetitively for monitoring the hydraulic behaviour of swales in Dalfsen. a) The swale under normal conditions in 2017. b) The same location after 7 weeks of drought in 2018.

Research polutants

Example of swale: Limmen, NW in the Netherlands



Venvik G. & Boogaard F.C. XRF quick-scan mapping for heavy metal pollutants in SuDS: a methodological approach, *SCi, Sci* 2020, *2*(1), 5; https://doi.org/10.3390/sci2010005, January 2020.



Contact

floris boogaard
@FlorisBoogaard
Sustainable watermanagement consultant, professor applied science, researcher. Life is what you make it...

dr.ir. F (Floris) Boogaard PhD
professor spatial transformations:
Floris@noorderruimte.nl

GreenBlue Climate Café : Sidney Jon Stax

Ecological and technological watermanagement

Water comes from:
The street
The rain sewer system
From other bioswales
From the sky
And even from the ground
(river water influence)

Hydraulic effects
Ecological effects
Pollution effects
Health effects
Social effects

GreenBlue Climate Café

Why trees in bioswales?

Infiltration
Purification of water
Biodiversity
Cooling effect
Participation and green area

GreenBlue Climate Café

Why not trees in bioswales?

Infiltration too fast for purification (skipping first 10 cm)

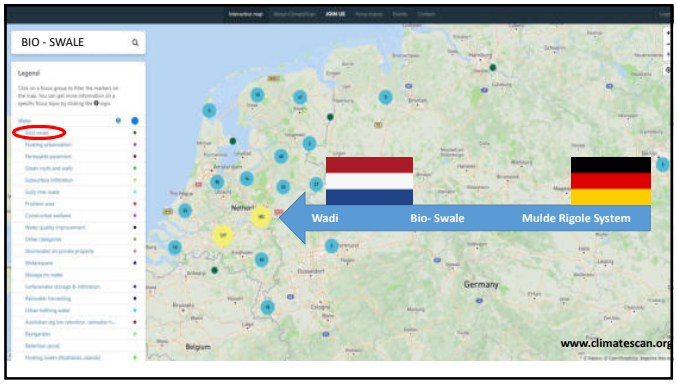
Leaf material clogges the soil

Root system destroys pipelines

Tree themselves must withstand periods of high water (24-48 hour inundated + saturated soil)

Tree themselves must withstand periods of drought (water infiltrates fast and flows to deeper layers or drainage system)

So YES trees in bioswales, but only if criteria are met!!



GreenBlue Climate Café

Rainwater for city trees

GUEST SPEAKER

YWP GERMANY

- **LENA KNOOP**
  Research Assistant, BlueGreenStreets,
  HafenCity University Hamburg (HCU)

Federal Ministry of Education and Research

FONA
Research for Sustainability

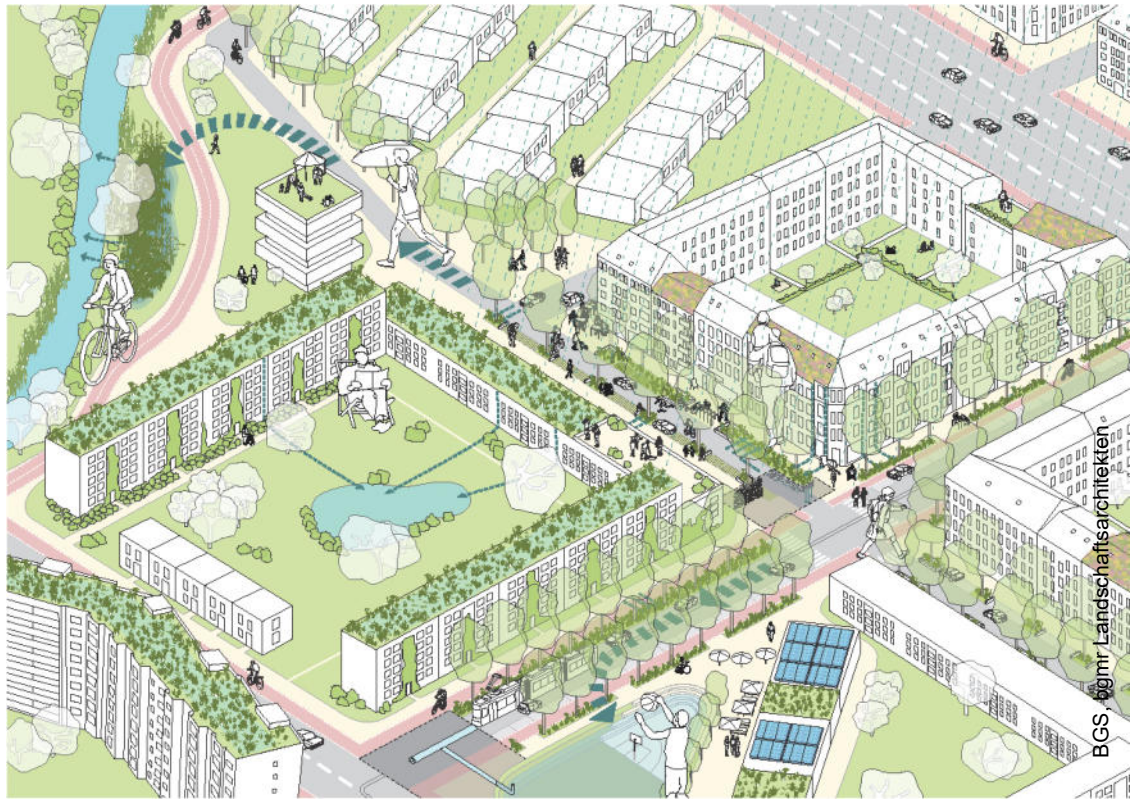
Zukunftsstadt

Eine Initiative des Bundesministeriums für Bildung und Forschung
RESOURCE
Ressourceneffiziente Stadtquartiere

resource-efficient urban districts for the future

BlueGreenStreets

multifunctional streetscape design in urban neigborhoods



BGS, bgmr Landschaftsarchitekten

IWA – Young Water Professionals,
Building Bridges, 11.02.2021, Lena Knoop (HCU)

Blue Green Streets | HafenCity Universität Hamburg | bgmr Landschaftsarchitekten | Universität Hamburg | Sieker Die Regenwasserexperten | Hochschule Karlsruhe Technik und Wirtschaft University of Applied Sciences | GEO-NET | TU berlin | i|ö|w Institut für ökologische Wirtschaftsforschung

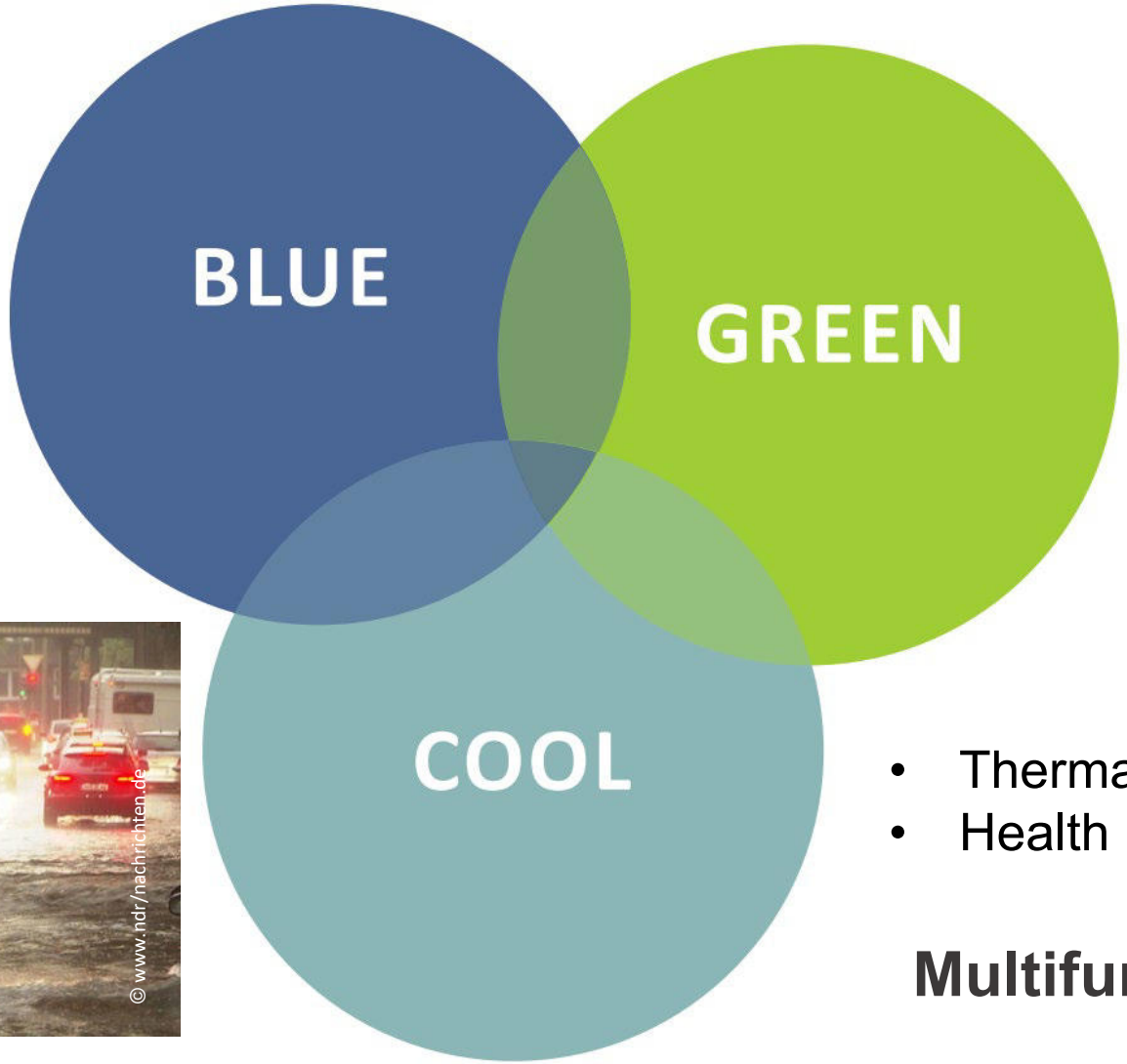
Agenda

1. BlueGreenStreets – the project
2. Tree pits – an introduction to the concept
3. Practical experience: Hölertwiete in Hamburg

BGS` goals

Blue Green Streets

- Natural water balance
- Protection against flooding



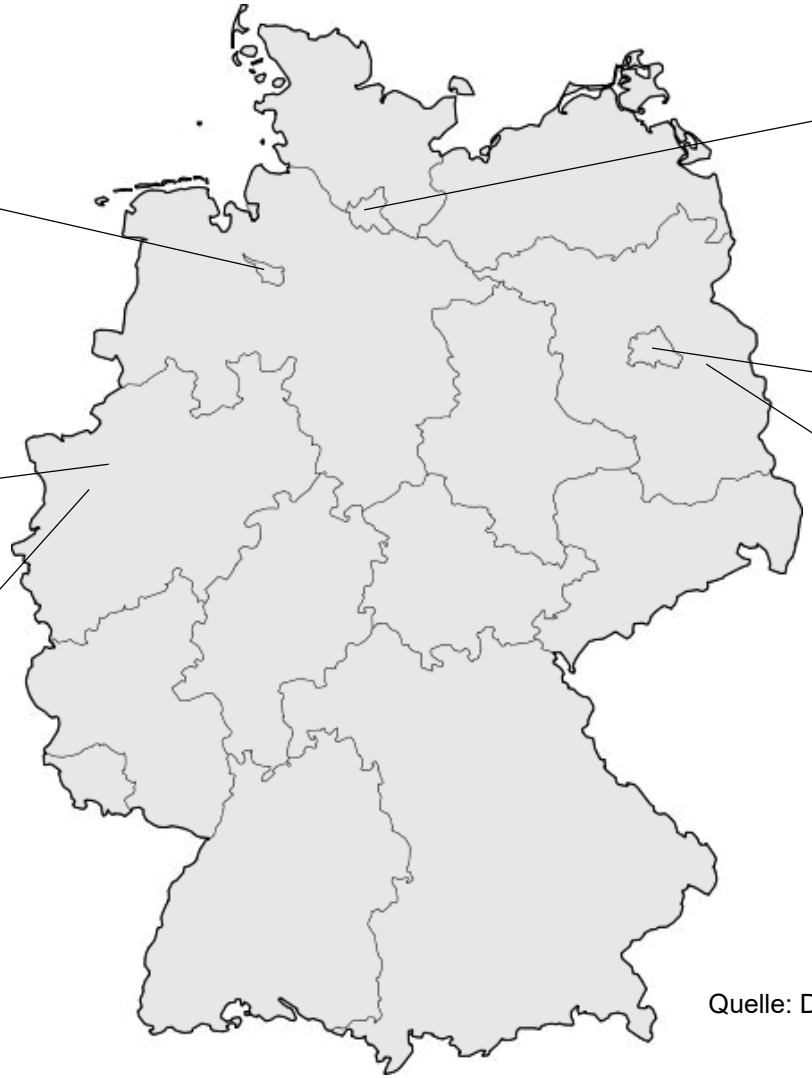
- Improve quality of sojourn
- Heat protection

- Thermal well-being
- Health protection

Multifunctional

Research by design: pilot projects

Blue Green Streets



Bremen

Adolf-Reichwein-Straße
Kurt-Schumacher-Allee
Paul-Singer-Straße

Bochum

Castroperstraße

Solingen

Friedenstraße
Heukämpchenstraße

Hamburg

Königstraße
Högerdamm
Gorch-Fock-Wall
Lindenallee

Berlin

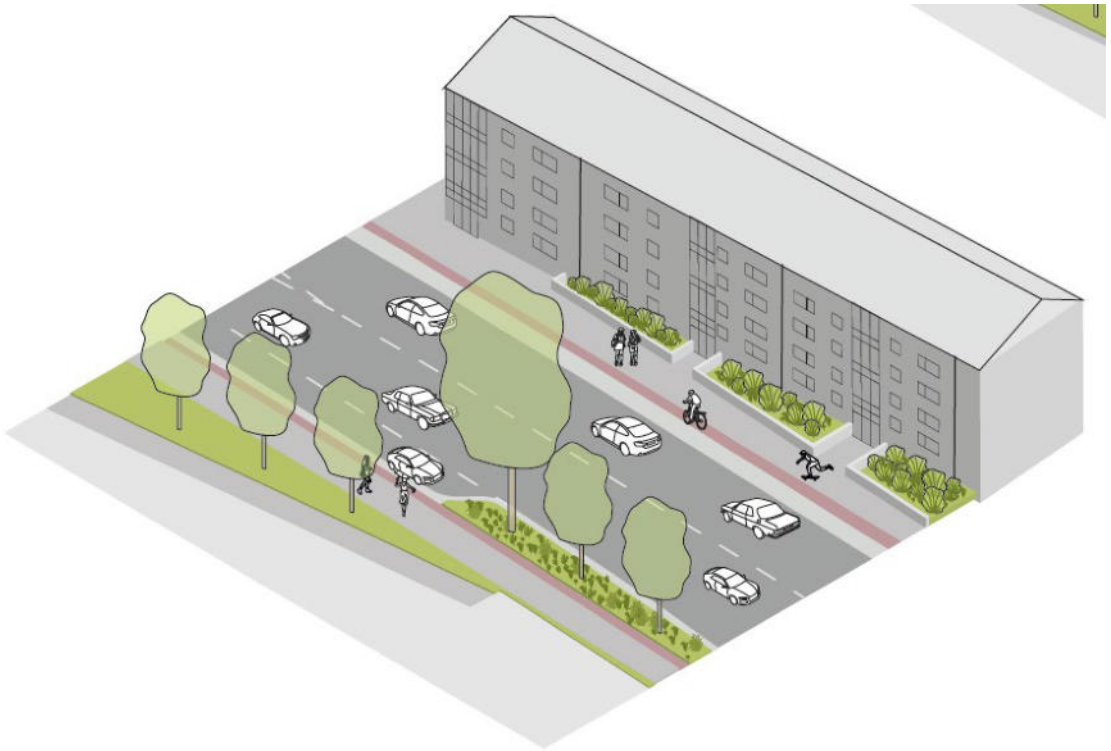
Rudolfstraße
Ungarnstraße

Neuenhagen

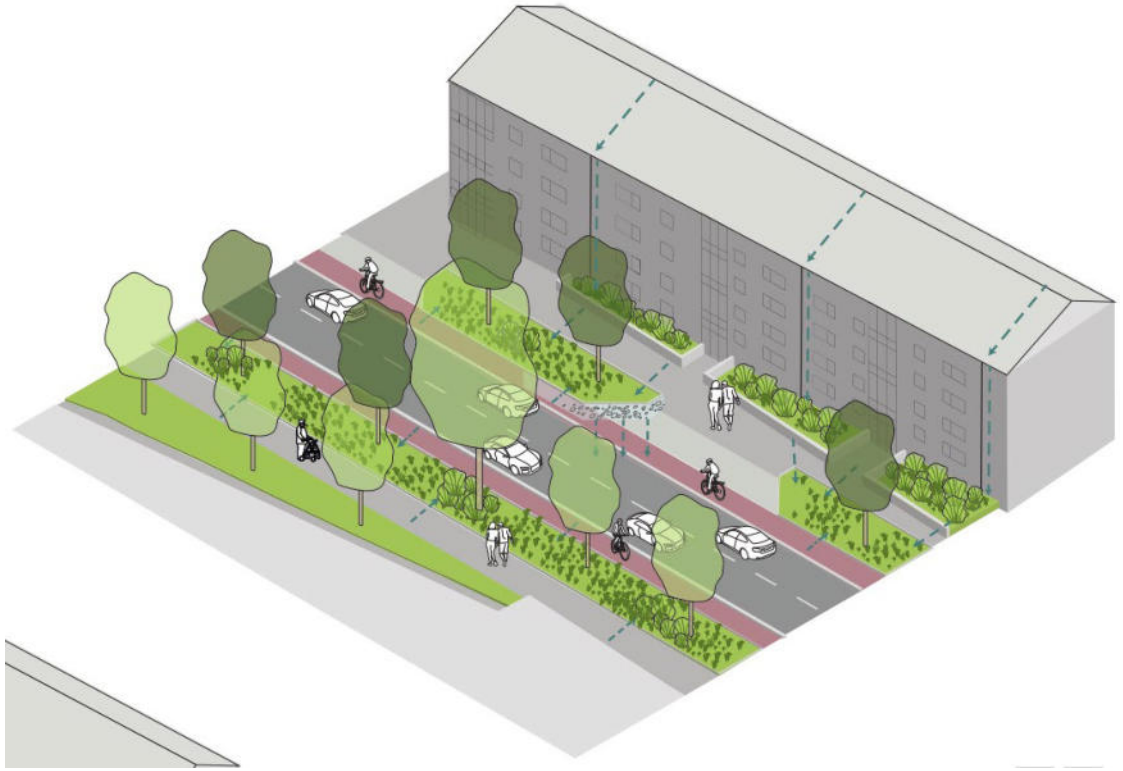
Ernst-Thälmann-Straße

Quelle: D. Liuzzo

Königstraße - Hamburg



before

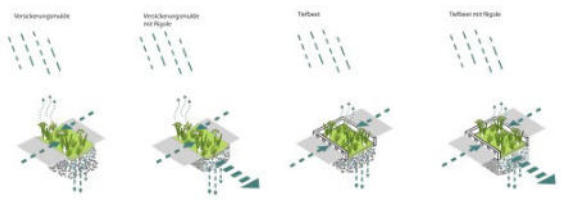


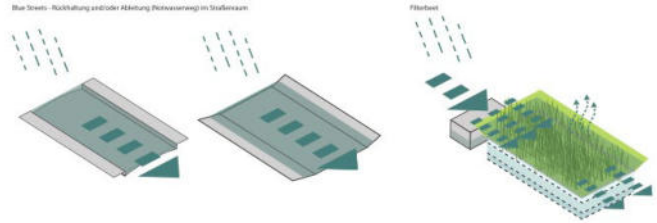
after

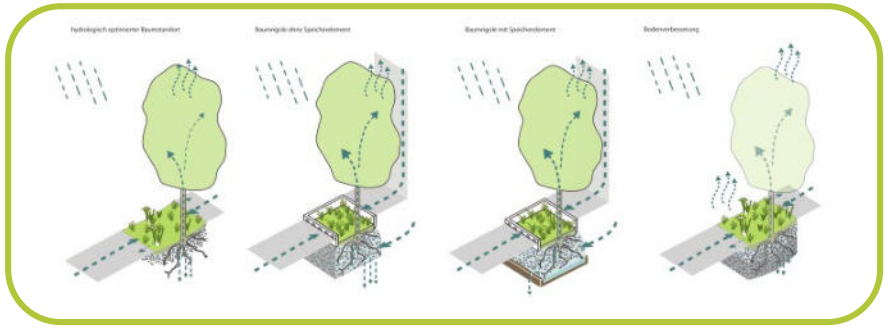
BGS, HCU

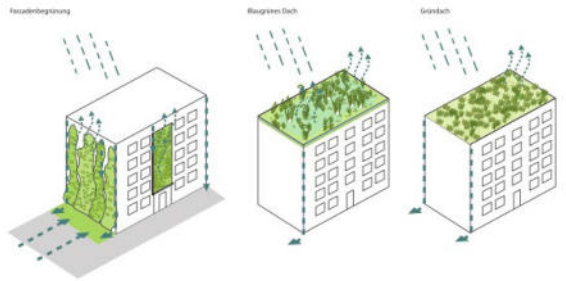
Multifunctional BGS elements

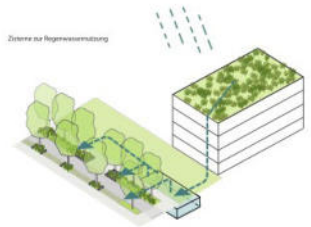
Idea: Greater consideration of elements in streetscapes that promote natural water circulation, vegetation/trees vitality and cooling at the same time

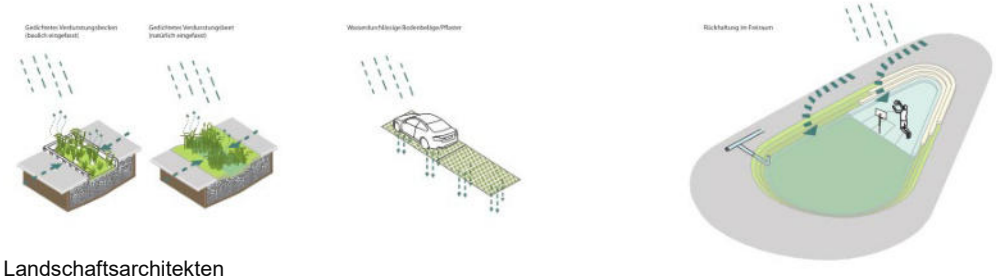










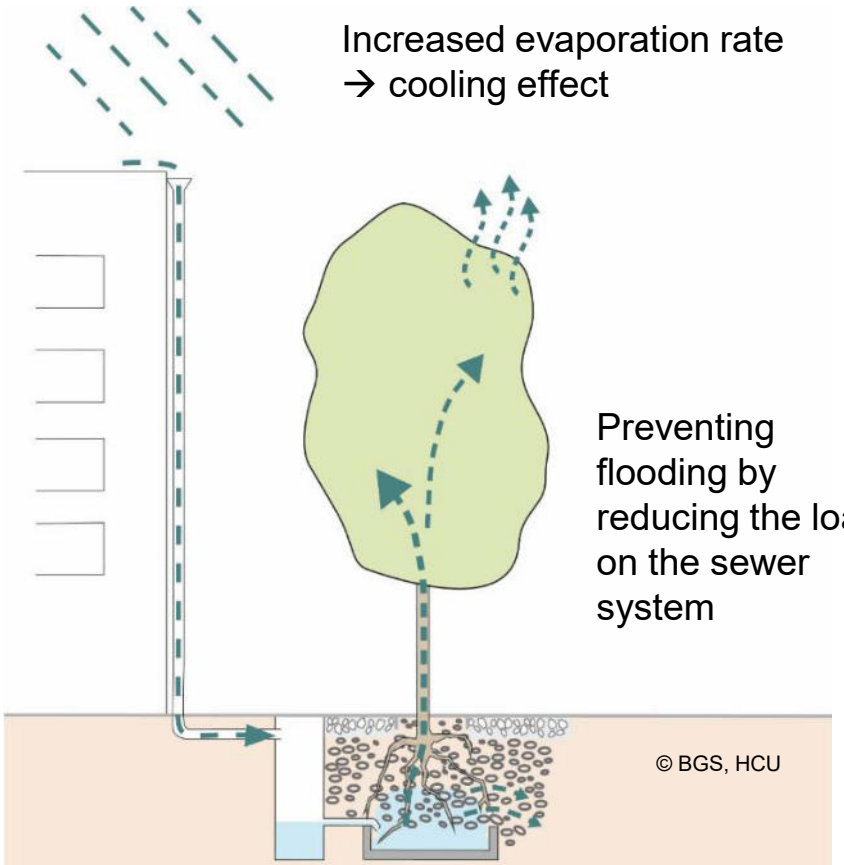


BGS, bgmr Landschaftsarchitekten

Stormwater tree pit

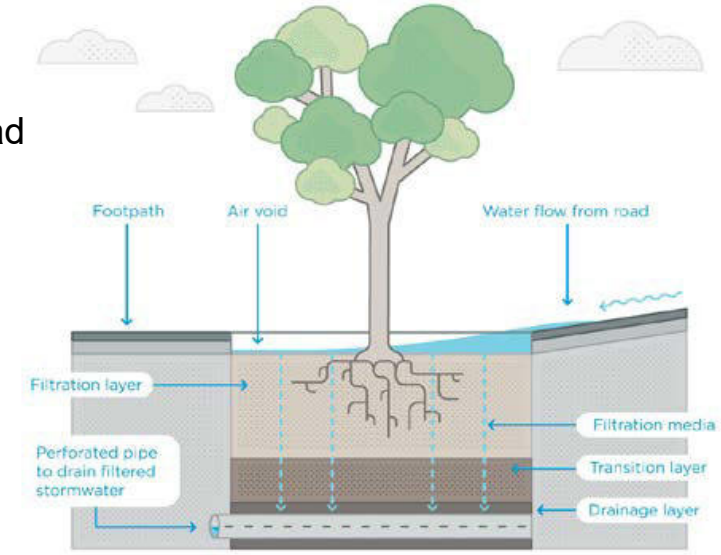
© GreenBlue Urban, 2018

Sufficient space (root space, min. 12 m3)



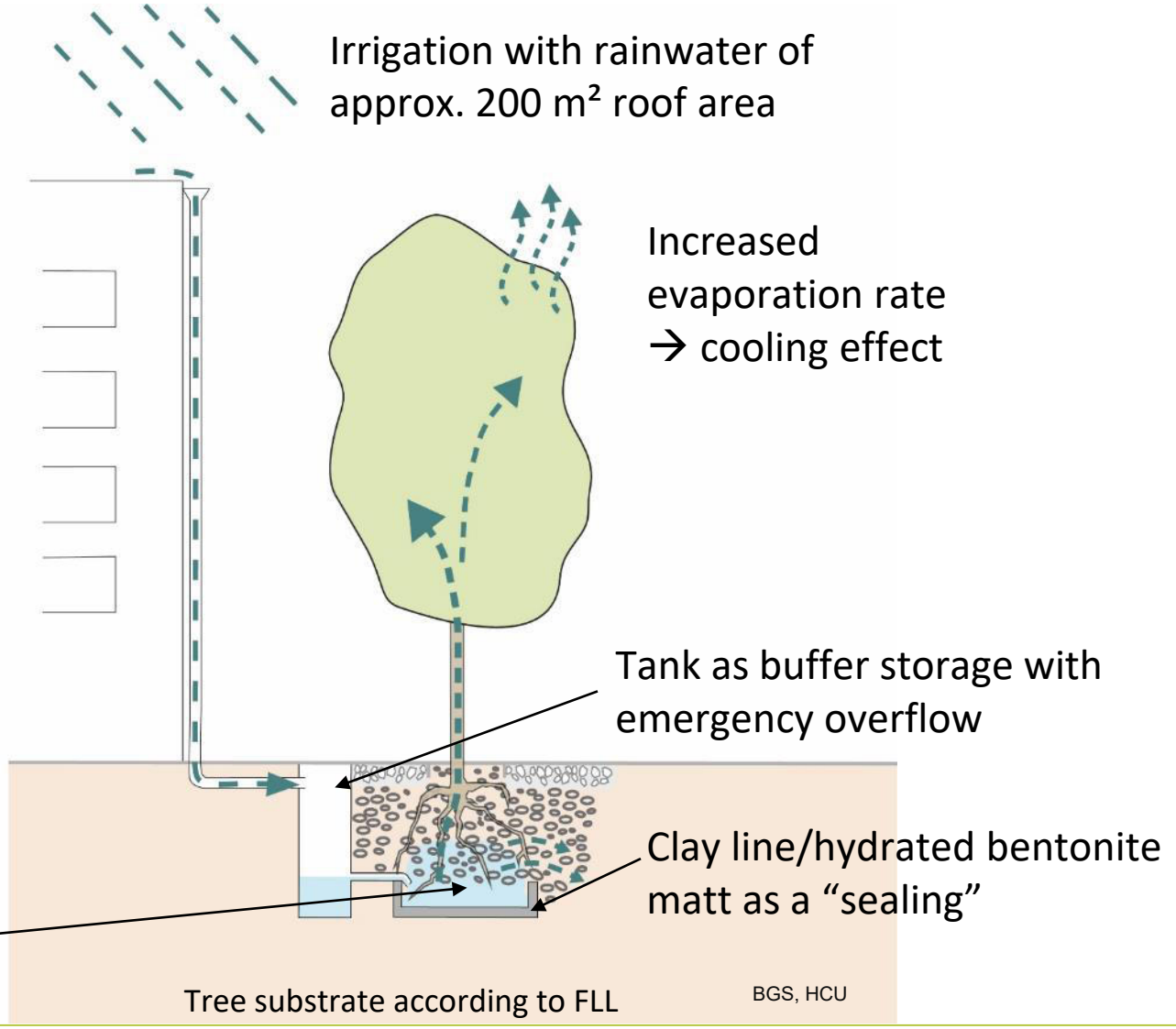
© BGS, HCU

© New York City



© City of Melbourne

BGS-stormwater tree pit - Hamburg



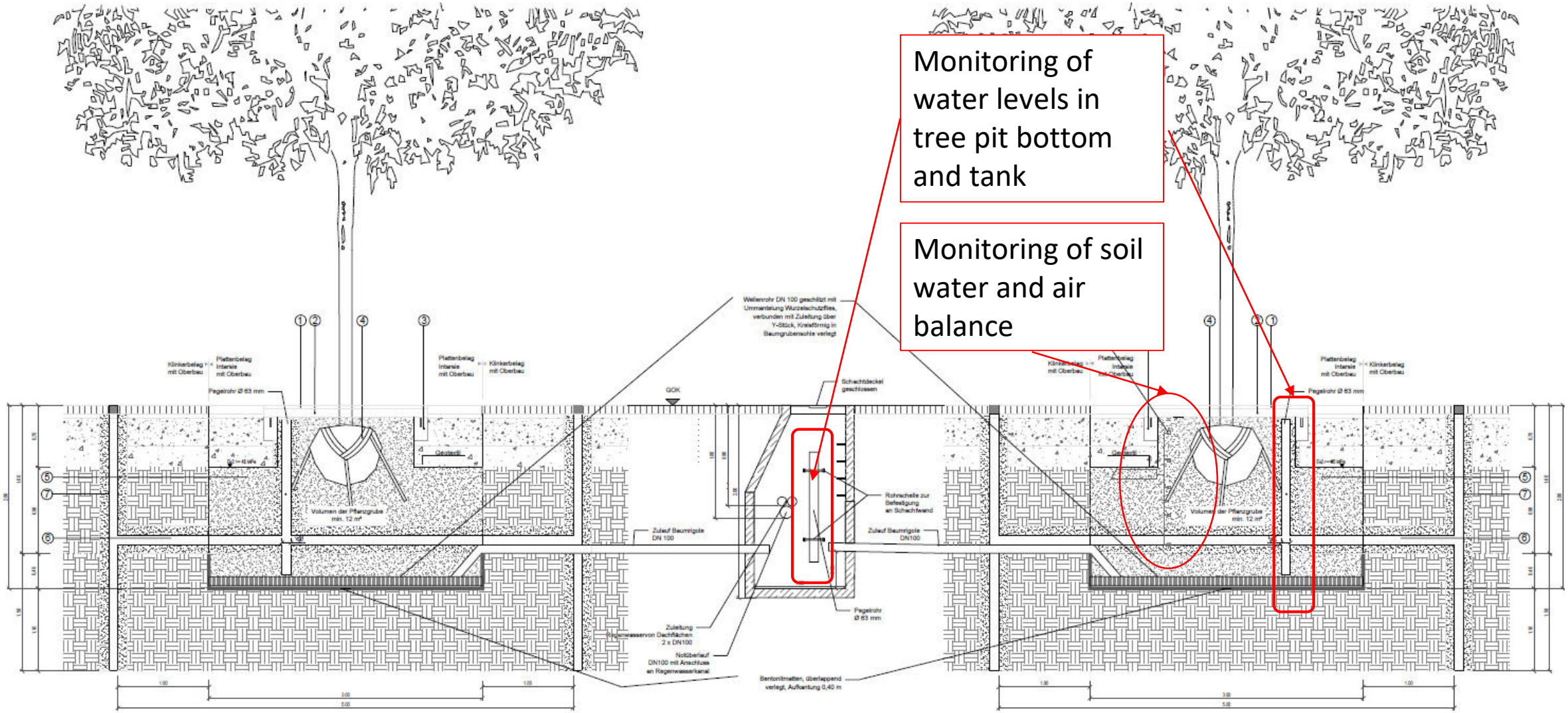
BGS-stormwater tree pit – Hamburg: construction

BGS, HCU

Construction of the tree pits

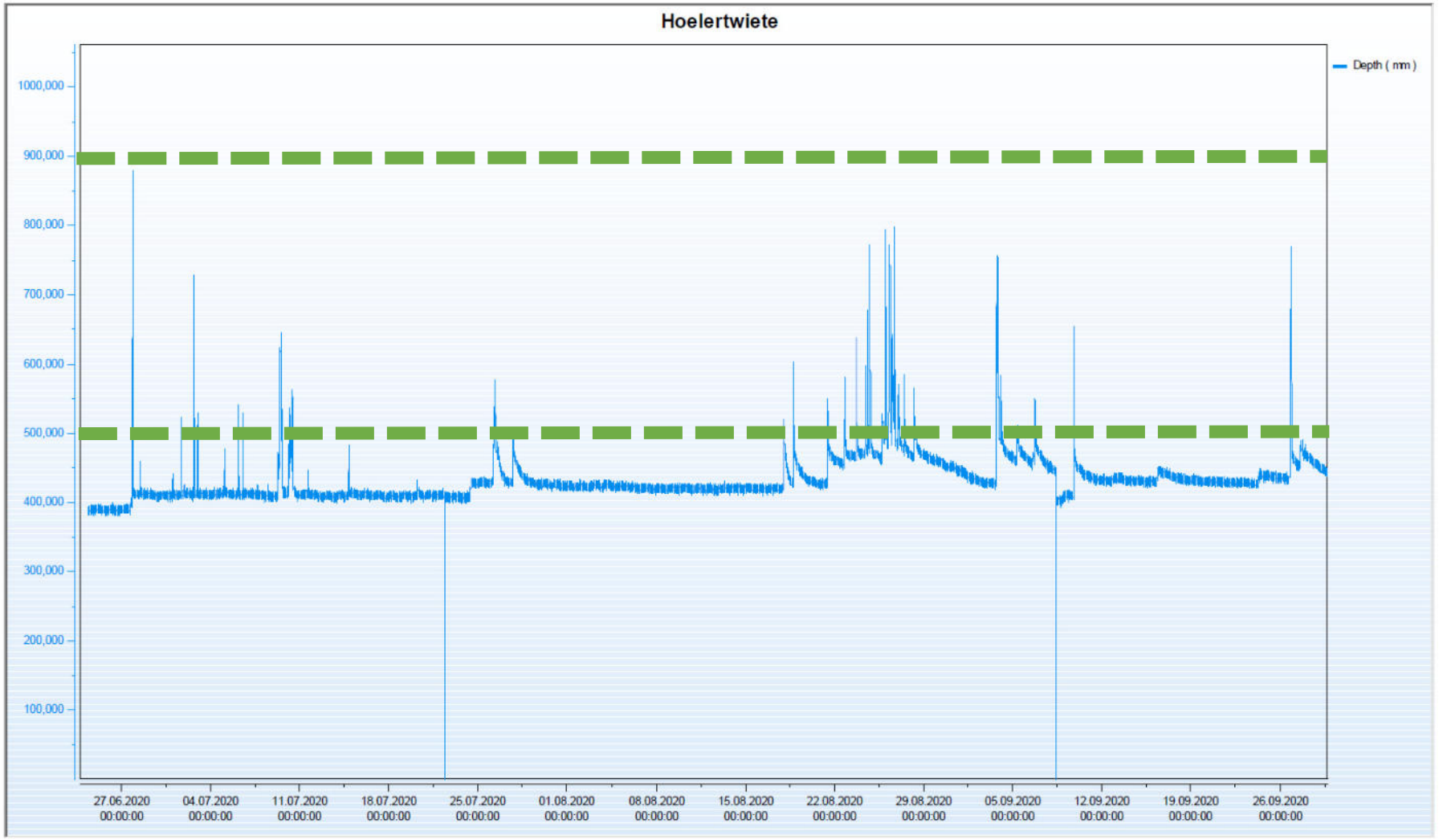
BGS, HCU

Monitoring



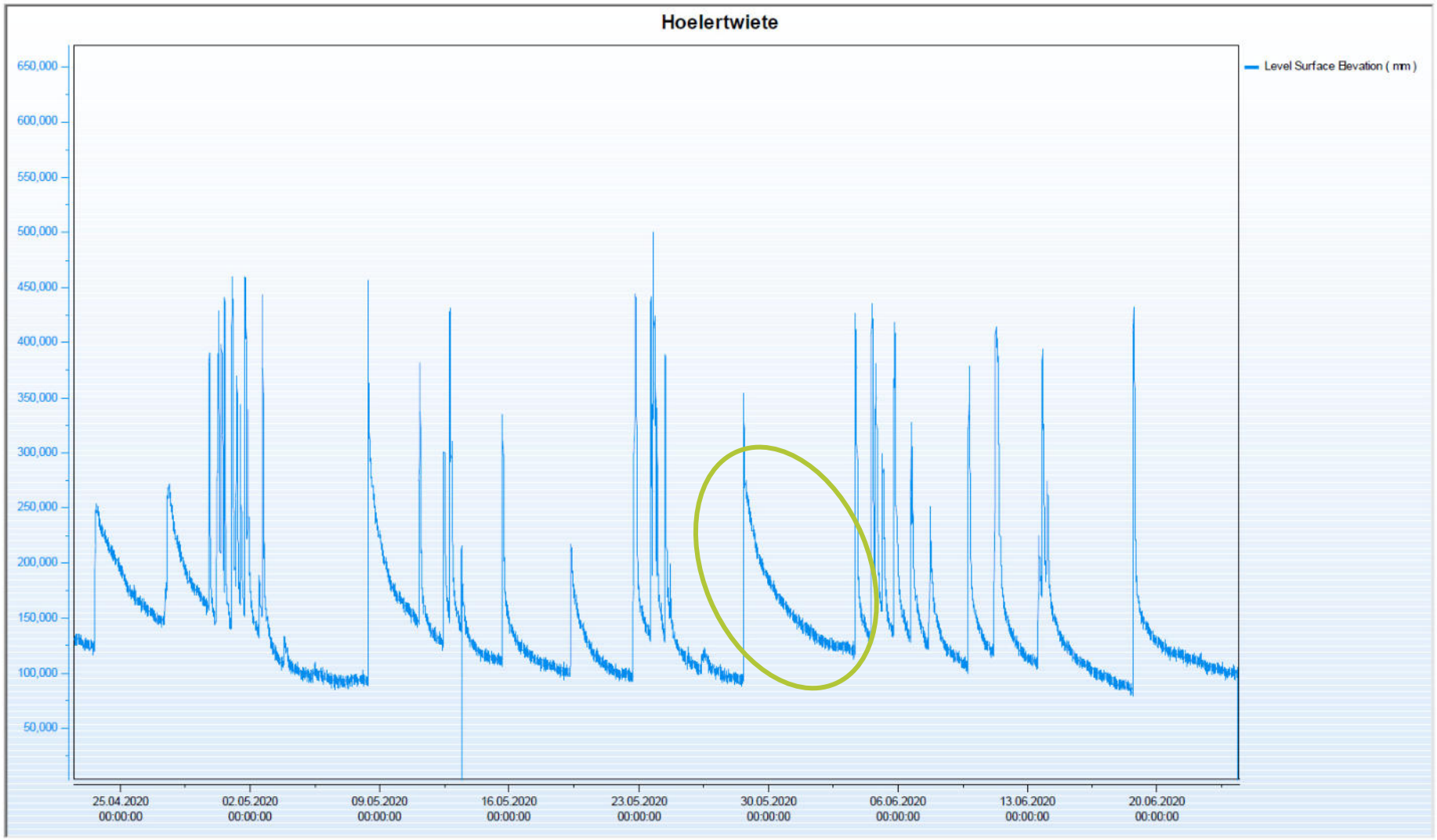
Zeichnung verändert nach arbos freiraumplanung GmbH

First monitoring results



BGS, HCU

First monitoring results



BGS, HCU

Questions remaining







…Sediments, responsibilities…

BGS, HCU

Award: Bundespreis Stadtgrün 2020

Bundespreis Stadtgrün 2020

Projekt „Multifunktionale Klima-Baumstandorte“ ausgezeichnet

7. August 2020 15:00 Uhr

Die Abteilung Stadtgrün des Bezirksamtes Harburg ist für das Projekt „Multifunktionale Klima-Baumstandorte“ in der Kategorie Gepflegt mit einem Preis ausgezeichnet worden.

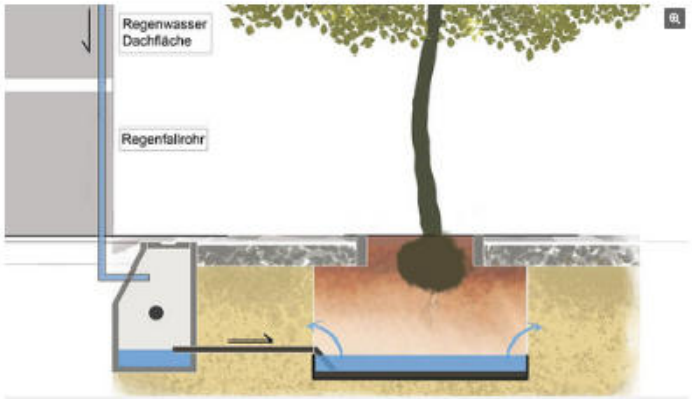
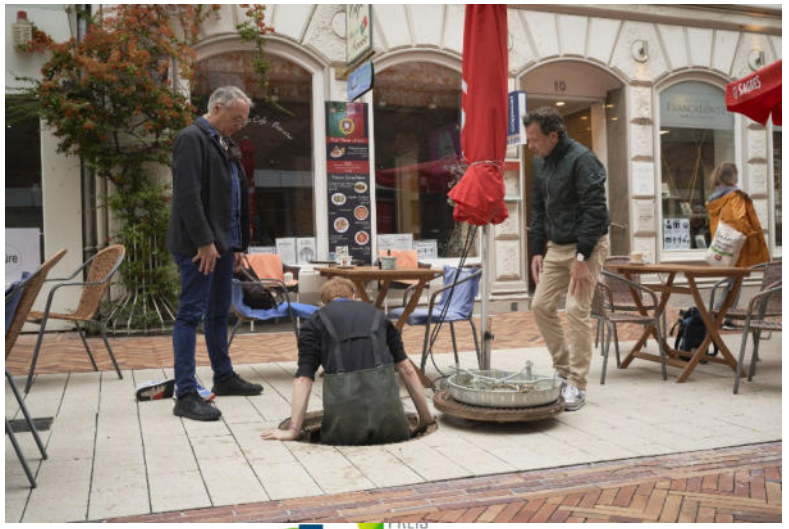


Bild: © HafenCity Universität Hamburg / Michael Richter

Die "multifunktionalen Klima-Baumstandorte" in der Hölertwiete in Harburg sind das Ergebnis eines Planungsprozesses unter der Zusammenarbeit der Abteilung Stadtgrün des Bezirksamtes Harburg, der HafenCity Universität Hamburg (HCU) und der Universität Hamburg (UHH). Unter den genannten Herausforderungen war es das Ziel, technische Lösungen zur Vergrößerung des Wasserspeichervolumens der Pflanzgruben und gleichzeitig zur Verbesserung der Vitalität und Wasserverfügbarkeit für Bäume in Trockenzeiten zu finden. Bei den im März 2020 neu gebauten Baumgruben werden neben der Erfassung des Unterhaltungsaufwands auch ein Monitoring des Wasser- und Bodenlufthaushalts betrieben um die Funktionalität hinsichtlich Regenwasserversickerung und Baumvitalität zu bewerten. Das Projekt wurde mit Mitteln aus dem Rahmenprogramm integrierte Stadtteilentwicklung (RISE) und Mitteln der Behörde für Umwelt, Klima, Energie und Agrarwirtschaft (BUKEA)

www.bundespreis-stadtgruen.de/entry/multifunktionale-klima-baumstandorte



Bundespreis Stadtgrün/Hergen Schimpf

Thank you for your attention!

M.Sc. Lena Knoop

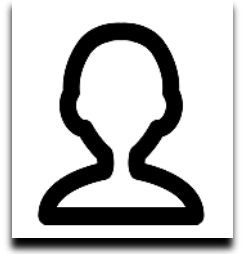
HafenCity Universität Hamburg (HCU)

"Umweltgerechte Stadt- und Infrastrukturplanung“

More information:

www.hcu-hamburg.de/bluegreenstreets

BlueGreenStreets@hcu-hamburg.de

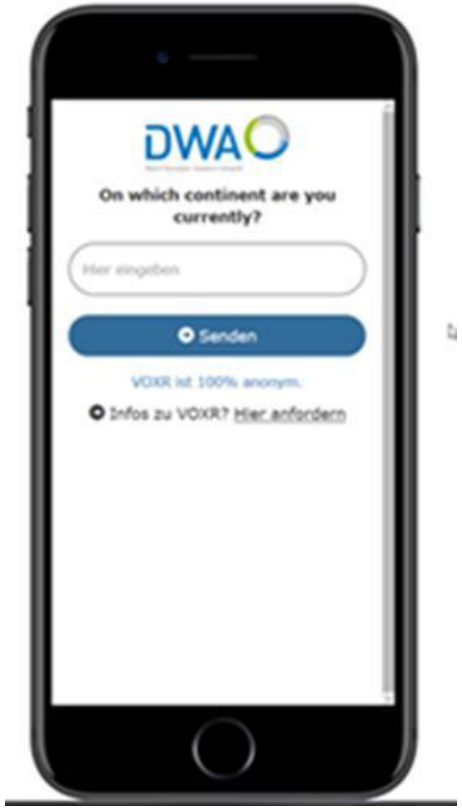


SESSION FEEDBACK

Question 2:

Presentations! Which word stuck with you the most?

Link VOXR: https://voxr.com/dwa



SESSION FEEDBACK

Results

Whats your background

DWA
Klare Konzepte. Saubere Umwelt.

VOXR
SMART Conferencing

Which words stuck?

DWA
Klare Konzepte. Saubere Umwelt.

VOXR
SMART Conferencing