

BRUGGE



Water Resilient Cities Sustainable Design

03/04/2019

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WND. AFDELINGSHOOFD CLUSTER OPENBAAR DOMEIN

STAD BRUGGE

**GOOD DESIGN IS
innovative**

1

ROOT SPACE IN URBAN CONDITIONS

INNOVATIVE SOLUTIONS TO COMBINE SUSTAINABLE TREE PLANTING IN HARD URBAN CONDITIONS

- ROOT CONTROL
 - UNDERGROUND CONTAINER
 - CUSTOM MADE UNDERGROUND CONCRETE SHELTER
 - ROOT BARRIERS
- ROOT CONTROL + RAIN WATER AND DRAINAGE MANAGEMENT
 - SUD's

GOOD DESIGN IS INNOVATIVE



ROOT SPACE IN URBAN CONDITION













Climate proof planning

**GOOD DESIGN IS
innovative**

2

SURFACE WATER QUALITY

HYDRAUNATICAL STUDIES AND INVESTMENTS TO IMPROVE THE QUALITY OF SURFACE WATER AND SUSTAINABLE USE OF RAIN WATER IN PUBLIC AREAS

- DISCONNECTION OF SEWAGE WATER INTO DIVIDED SYSTEM
 - RAIN WATER
 - SEWAGE SYSTEM
- PURIFICATION OF THE CITY CANALS
 - CLEAN WATER INJECTION
 - OXYGEN INJECTION (DUE TO NEW FOUNTAIN IN K.ALBERTPARK)
- SMART SOLUTIONS FOR INFRASTRUCTURAL BOTTLENECKS
 - SIPHON UNDERNEATH CITY CANAL INSTEAD OF DISCHARGING SEWAGE WATER INTO THE CANAL



GOOD DESIGN
makes space useful

3

PARK TEN POELE

REDEVELOPMENT OF A UNUSEFUL PLAYGROUND

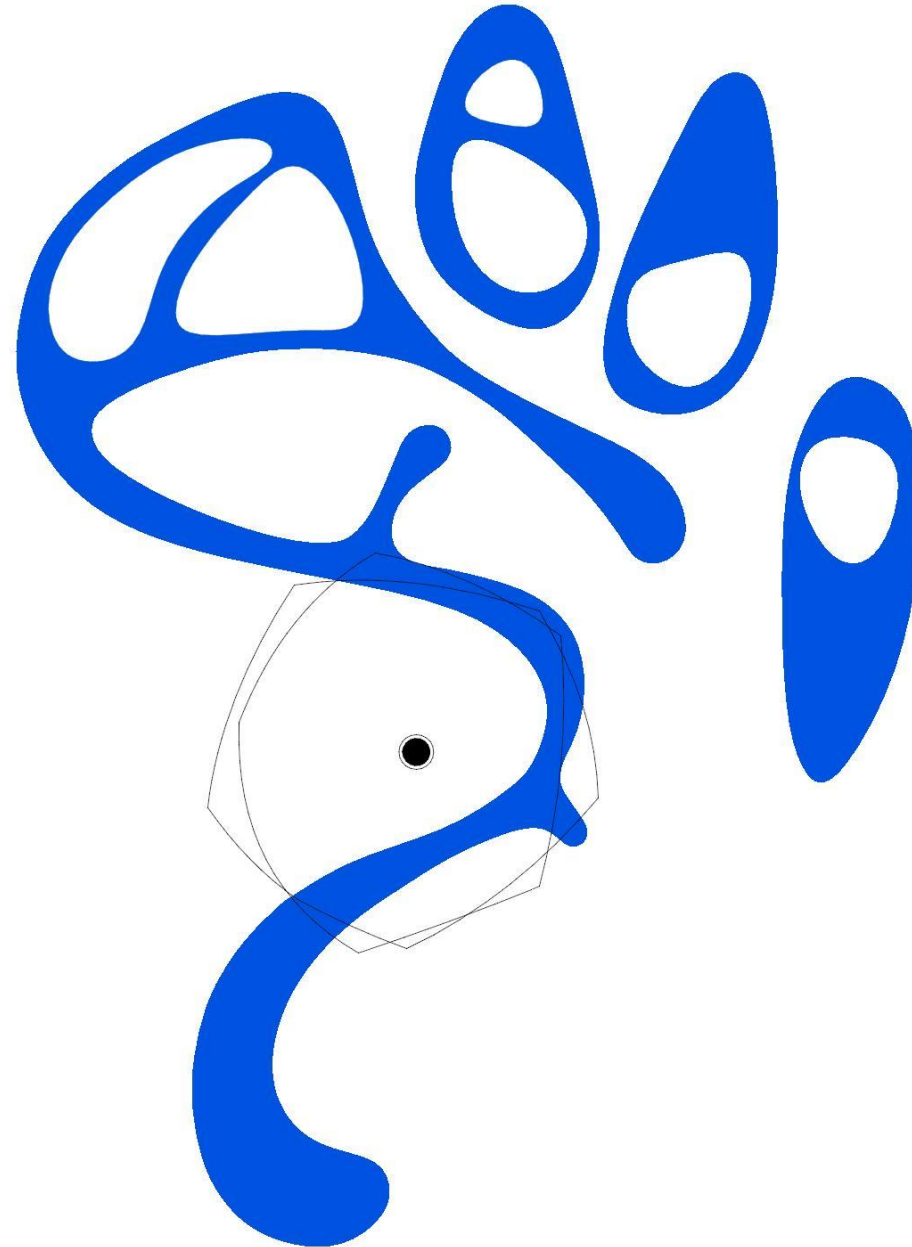
- DENSITY OF USERS COMPARED TO SWAMPY PLAYGROUND
 - DELETE THE PLAYGROUND ?
 - DRAIN THE WATER AWAY ?
- ACCOMPANY BOTH











Climate proof planning

GOOD DESIGN
makes space useful

4

PASTOOR VAN HAECKEPLANTSOEN

ACCESIBILITY 12 MONTHS A YEAR

- HIGH FLUCTUATING WATER LEVEL
- INACCESSIBILITY DURING LONG PERIOD DUE TO WATER LEVEL
- CREATING A WOODEN BOARDWALK ABOVE SOIL LEVEL



Climate proof planning

**GOOD DESIGN IS
aesthetic**

5

DE BILK

REDEVELOPMENT OF A NEIGHBOURHOOD WATER BUFFER BASIN

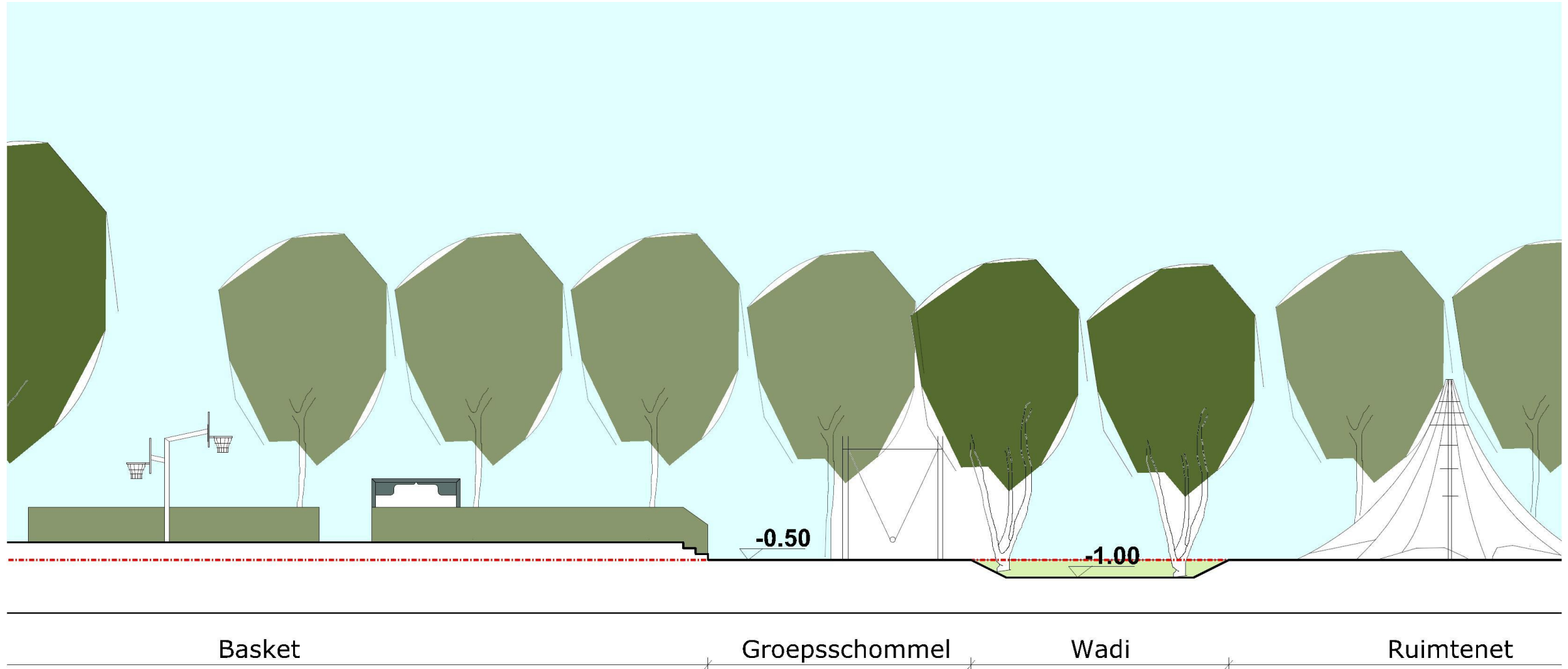
- DENSITY OF USERS AND ACTIVITIES COMPARED TO ESSENTIAL INFILTRATION AREA
 - DEAL WITH THE PRESENCE OF A LOW LYING 'GREEN'
 - RAISE THE PLAYING AREAS TO ALLOW DRY PLAY FACILITIES
 - PRESERVE THE BUFFER CAPACITY = GROUND BALANCE 0%













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GOOD DESIGN IS AESTHETIC

DE BILK



6

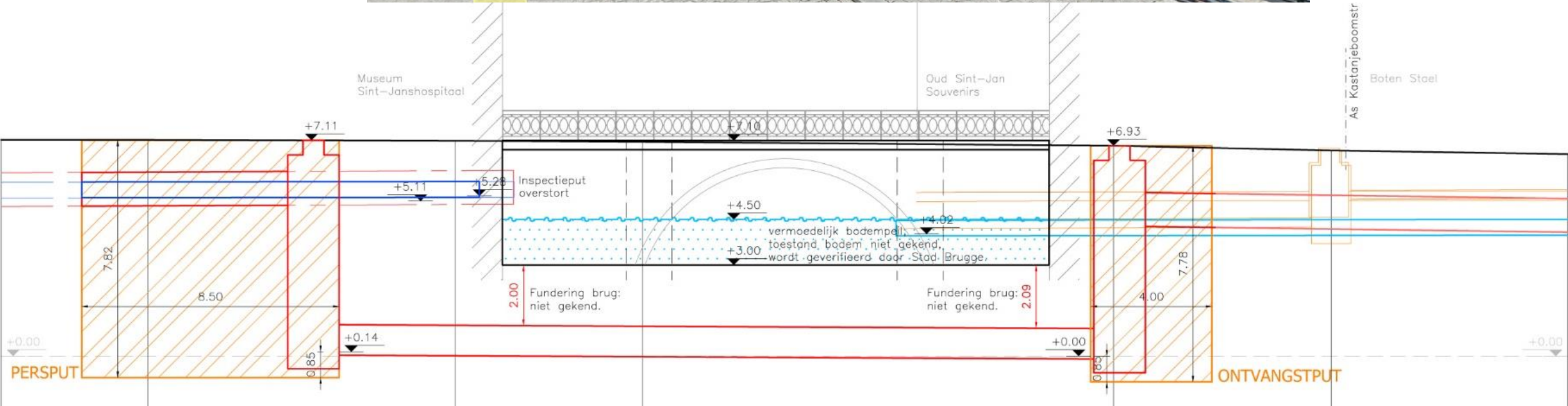
**GOOD DESIGN IS
environmentally
friendly**

KATELIJNESTRAAT

REDESING OF MAIN SHOPPING AND TOURISTIC STREET IN THE CITY CENTRE

- DISCONNECTION OF SEWAGE WATER INTO DIVIDED SYSTEM
 - RAIN WATER
 - SEWAGE SYSTEM

- PURIFICATION OF THE CITY CANALS
 - INSTALLATION OF A SIPHON UNDERNEATH THE CITY CANAL



7

**GOOD DESIGN IS
environmentally
friendly**

NSC – NATURE SMART CITIES, INTERREG 2SEAS

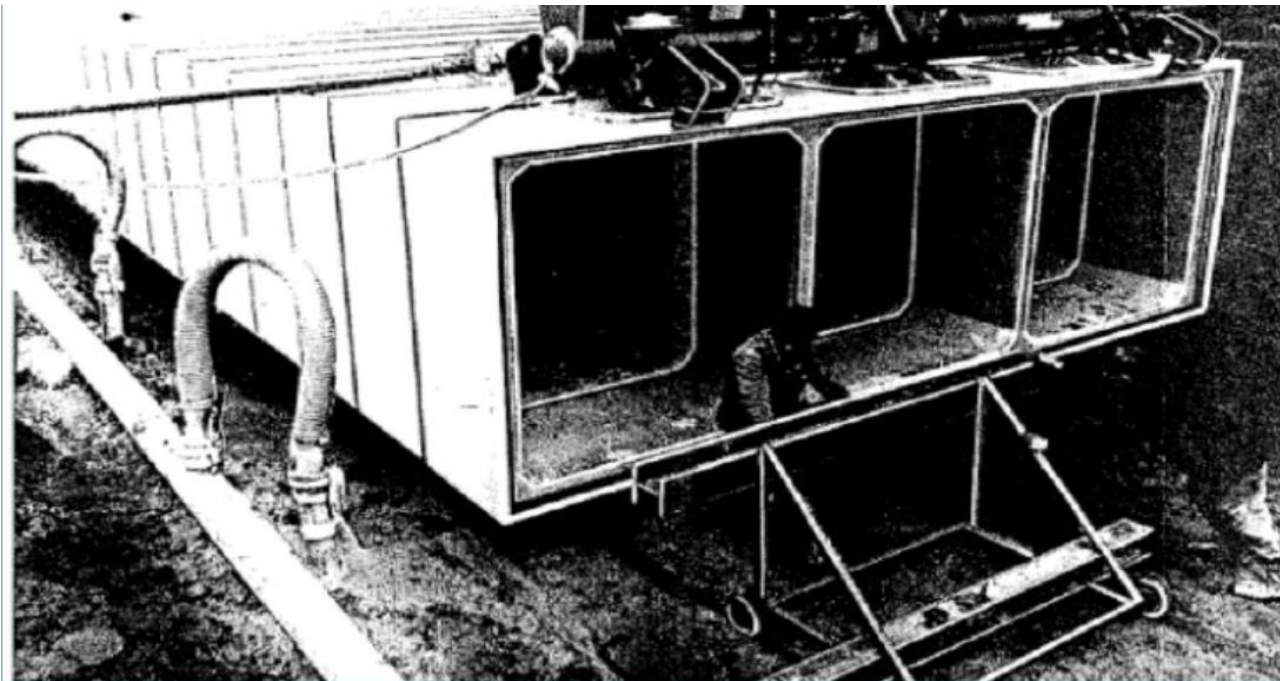
REVIVE GREY INTO GREEN INFRASTRUCTURE


- BUSINESS MODEL AND METHODOLOGY
- VALIDATION OF GREEN INFRASTRUCURE
 - ECONOMIC IMPACT
 - SOCIAL RESPONSE
 - ENVIRONMENTALLY FRIENDLY



FORMER RIVER (KERKEBEEK), TRANSFORMED INTO UNDERGROUND TUBE

- REVIVE THE PRESENCE OF WATER
- UPSCALE THE BUILT AREAS
- REINTRODUCE NATURE





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