Jardin des Eaux (water garden) in Fourqueux, a water management system for the city centre

Year of issue

2025

Summary

Fourqueux (≈4,000 inh.) requalified its centre with new housing and created the “Jardin des Eaux” to manage stormwater from ~1.7 ha. The park routes runoff through a sequence of dry basins to a planted permanent pond, infiltrating frequent rain and avoiding direct discharge to the separate sewer draining to the Seine via the ru de Buzot. Delivered in 2016 after 2014–15 studies (as part of the Cœur de village programme), the site is both hydraulic infrastructure and neighbourhood amenity. Recent technical records report ~482 m³ of storage and ~5,000 m³/year of volumes kept out of sewers (≈80% of ~700 mm annual rainfall) over ~9,000 m² of active surfaces; typical events up to ~8 mm are handled on site, with measured infiltration times of 15–58 h depending on the basin. The landscaped area itself is ~3,800 m², reconnects clean water to the ru, and supports colonisation by aquatic fauna. The project has been showcased in professional visits and local programming, and remains highlighted by Saint-Germain-en-Laye; it was co-funded by AESN, Île-de-France Region and Yvelines Department.

Photo Gallery



Location

48.887901, 2.064136

Project

NWRM

National ID

France_11

Sector

Hydromorphology

Installation Date

2013

Implementation status

Completed

Overview

Location of the project

The commune of Fourqueux is located in the Yvelines, and has 4000 inhabitants.
In 2014, the center of the municipality of Fourqueux underwent an urban redevelopment operation, consisting of the creation of 80 housing units and the renovation and restructuring of the municipal social and cultural center. In addition, this work has led to the establishment of separate networks.
The area under requalification covers 1.7 hectares. In the center of this area was a private garden of 3200 m^2 dating from the 1930s, abandoned and left fallow. It was acquired by the city with the objective of making it a local park. Stormwater management was initially planned through underground networks in the road network, before the construction of the water garden in the park was considered.
The private garden was fallow, with natural biodiversity and no direct pressure. The subsoil of the area consists of very low-permeability green clays, which leads to the presence of several springs on the site.

Country

France

NUTS2 Code

Île de France

Sponge measures implemented in the case study

Basins

Swales

Rain Gardens

Objectives

The objectives of the project are:

Manage 1.7 hectares of rainwater in the open air;

Create a local square;

Improvement of the living environment (thermoregulation, cultural site);

Participation in integrated water resources management.

Involved partners

Authority type	Authority name	Authority role	Comments	Authority responsibility
Other	Ville de Fourqueux	Initiation of the measure	—	Responsible
Architects / Engineers	Agence Bertrand Paulet	Implementation	Lead landscape architect	Supporting
Architects / Engineers	Agence ATM	Implementation	Water management	Supporting
Architects / Engineers	SETU	Implementation	Roads and utilities engineering office	Supporting

Documents

mnre_rex10_jardin_des_eaux_fourqueux.pdf (1.13 MB)

Site Information

Climate Zone

Cool temperate moist

Precipitation

722.00 mm

Temperature (°C)

11.50 °C

Elevation range

105 m

Slope range

8%

Vegetation class

On-site: planted wetlands and swales with macrophytes for phyto-/bio-retention; first basin planted with “hyper-accumulator” species. Local matrix: deciduous forests (oak and chestnut dominate the Marly/Saint-Germain forests bordering Fourqueux).

WFD Ecological status

Bad

WFD Chemical status

Failing to achieve good

Water quality status

Ru de Buzot WFD water body. Historically mediocre ecological and poor chemical status; pressures from urban runoff and channel alterations.

Design and Implementation

Project scale

Micro

Project scale specifications

A neighborhood park (~3,100–3,800 m²) managing runoff from ~1.7 ha via basins/swales; a site-specific intervention within the town center.

Project area

1.7

Size

3100.00

Size unit

m2

Basis of design

Multifunctional park + at-source, open-air management; sequence of dry basins, planted permanent pond, swales, and bypass. Designed to retain ~8 mm events on-site, storage ≈ 482 m³, ~5,000 m³/yr kept out of sewers (~80% of ~700 mm/yr); measured infiltration 15–58 h.

Factor constraints

8% slope

Favourable preconditions

To be consistent with the city's desire to share urban space with natural spaces, it was necessary to integrate a hydraulic and ecological dimension into the urban space, in particular by managing rainwater over an area of 3 ha. The choice of these types of developments was important so that the artificialization of the area by housing was not associated with soil sealing (and therefore runoff and stormwater management by the sewerage network).

Financing

Total cost

703846.00 €

Financing authorities

Authority name	Type of funding	Comments	Financing share
Seine Normandie Water Agency	Sub-national funds	€194,361	27 %
Île-de-France Region	Sub-national funds	€210,956	30 %
Yvelines Department	Sub-national funds	€235,000	33 %

Policy and Governance

Policy description

Municipal owner/lead, MOE team (Bertrand Paulet—lead landscape; ATM—hydrology; SETU—VRD). Project embedded in the “Plaines & coteaux de la Seine centrale urbaine” basin contract; AESN policy favors on-site infiltration of small storms; WFD target for the ru de Buzot. Addresses CSO/urban runoff discharges and public-realm quality.

Land ownership

Owned by the municipality: the City of Fourqueux (now Saint-Germain-en-Laye) acquired the former private garden to create a public park.

Part of a wider plan

No

Public consultation

No

Has contractual arrangements

No

Impacts and Monitoring

Monitoring System

Monitoring requirements

No monitoring requirements.

Maintenance

Maintenance requirements

Maintenance was carried out by the company that completed the works for 3 years. After that, maintenance is managed by the city: mowing, tree pruning, and cleaning of the basins.

Impact Assessment Methodology

Biophysical impact assessment method

No assessment methods or practices was used for assessing the biophysical impacts.

Biophysical impacts: Hydrology

Hydrological effects

Frequent storms retained on-site (~8 mm); ~482 m³ storage; ~5,000 m³/yr not sent to sewers; reconnection of clear water to the ru de Buzot; local habitat creation.

Information on retained water

The current rains are infiltrated, the heavier rains (over 8 mm) are partly infiltrated, the overflow joining the Seine.

Biophysical impacts: Biodiversity

Improved biodiversity

Yes

Information on improved biodiversity

The arrival of waterfowl (Mallard ducks) and amphibians has been observed in the central basin.

Lessons Learned

Key lessons

The water garden is capable of managing rainfall up to 8 mm without discharging stormwater into the separate sewer system. Infiltration occurs over a period of 15 to 58 hours depending on the basins. For heavier rainfall, the stormwater flows into the Seine. The basins are vegetated in such a way as to have a purifying effect on the water, although this effect has not been quantified due to a lack of monitoring. The site has been colonized by aquatic species, particularly amphibians. Finally, the impact of the Nature-Based Solutions (NBS) on the living environment is considered very positive by the project leader.

Barriers

Barrier type	Barrier role	Comments
Other	Main barrier	The prime contractor's proposal to consider stormwater management on site was a trigger for the project. However, the fact that work had already begun on the other areas of the site's requalification was a difficulty, given that the rainwater to be collected came from these areas. Many meetings were necessary to determine the possible interfaces in the water garden and other sites.
Other	Main barrier	The slope of the site represented a technical difficulty because it was not suitable for rainwater infiltration. The solution proposed by the project manager was the use of a system of successive basins in "Asian terraces" format.

Success factors

Success factor type	Success factor role	Comments
Attitude of decision makers	Main factor	The city's strong commitment to an integrated stormwater management solution, and in line with the urban park objective, was a facilitating element during these discussions.

Transferability

Highly transferable to dense centers if infiltration feasibility is confirmed and bypass/overflow routes exist. Key enablers: early multi-actor coordination, staged maintenance, public communication. Cautions: steep slopes, clayey soils, scope creep.

Sources

Sources

Le jardin des eaux à Fourqueux, un projet de parc et une gestion de l’eau à l’échelle du centre-ville