

Lublin T_Labs – Rain Gardens

The Overview of the Rain Gardens concept in Lublin:

- Since 2021, the City of Lublin has been systematically implementing rain gardens as part of its climate adaptation and green infrastructure strategy.
- Currently, there are 7 rain gardens established as part of a top-down strategy.
- Four of them were selected to be included in NatureScape project as Lublin T-Tab (**Fig. 1**).
- All of them were financed by the Lublin City Office (LCO).
- The Lublin City Office serves as the legal manager of the rain gardens.
- Residents, mainly secondary school students, actively participated in the planting process.
- Although rain gardens are not explicitly mentioned in the city's main strategic documents, their inclusion in Green Budget and other documents indicates their growing importance in the city's urban policy.
- The city has recognized the ecological and social potential of rain gardens and plans to implement more of these solutions. It is also aware of their scientific and educational benefits. Therefore, a legal agreement between the ULSL and the LCO has been signed to support the implementation of the NatureScape project.

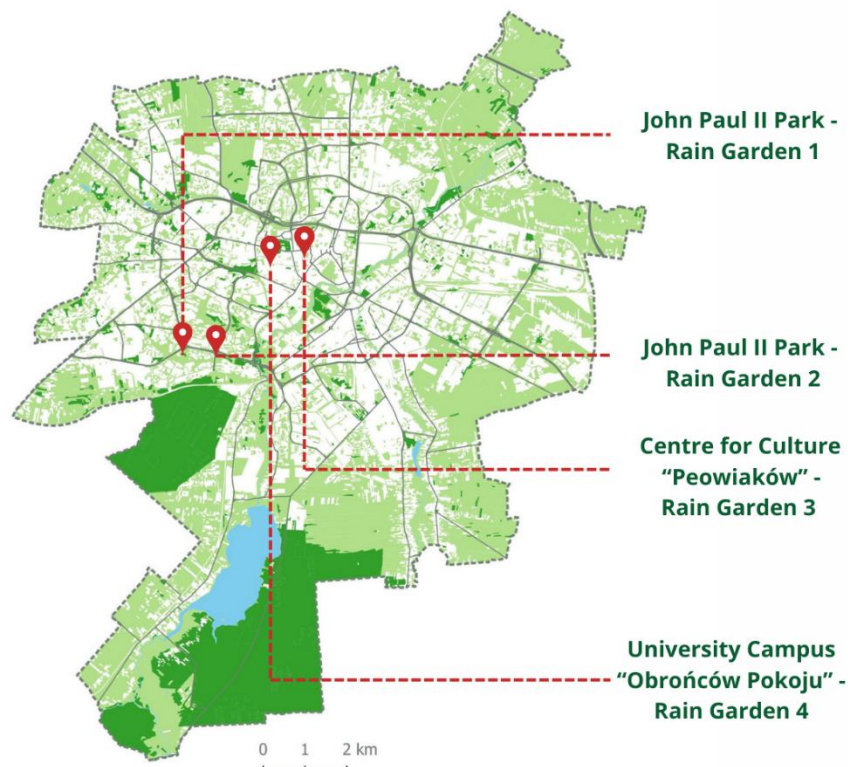
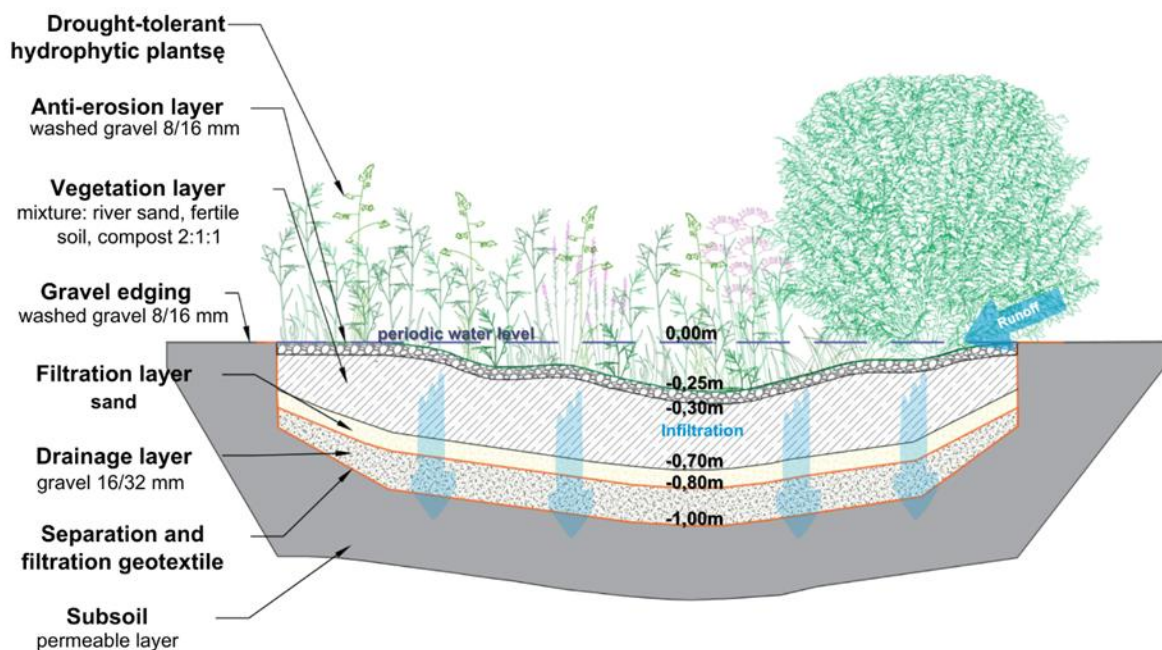


Fig. 1 Localization of rain gardens selected to be analyzed in NatureScape project within the borders of Lublin city, Poland

The Overview of Rain Gardens analyzed in the project:

John Paul II Park - Rain Garden 1

In John Paul II Park in South Czuby, a rain garden with an area of 28.3 m² was created to capture and infiltrate rainwater. It collects runoff from a catchment area of 500 m², mainly from paved squares and sidewalks, which then flows into a local land depression. An infiltration garden solution was applied here – water gradually seeps into the soil instead of flowing into the sewage system. The garden was planted with native species resistant to variable moisture conditions: dwarf purple willow (*Salix purpurea* 'Nana'), spotted Joe-Pye weed (*Eupatorium maculatum*), meadowsweet (*Filipendula ulmaria*), Siberian iris (*Iris sibirica*), and purple loosestrife (*Lythrum salicaria*). Thanks to these plantings, the garden serves not only an ecological but also an aesthetic function, enriching the park's biodiversity.





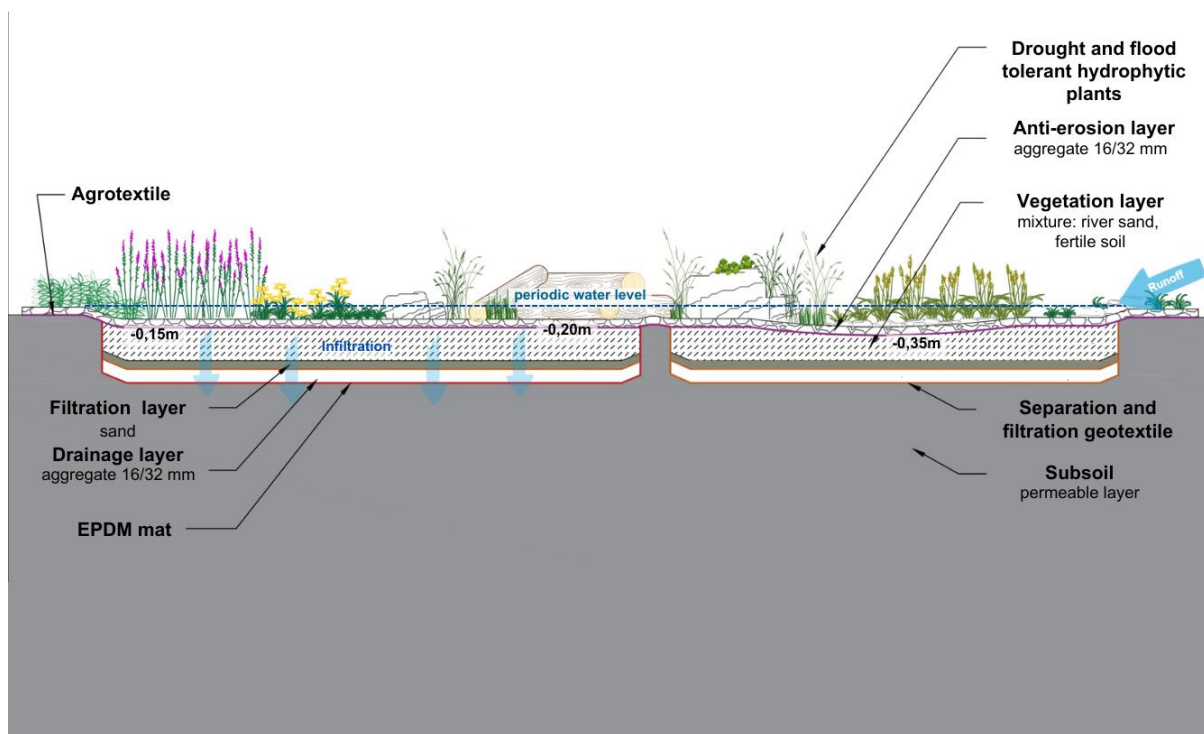
John Paul II Park - Rain Garden 1



Summer 2025

John Paul II Park - Rain Garden 2

In December 2024, a rain garden was created in John Paul II Park under the viaduct on Filaretów Street. Its purpose is to manage stormwater and meltwater, improve the aesthetics of the space, and support local biodiversity. The total area of the rain garden is 46.8 m², while the gravel bed covers 71.3 m², and the dry stream channel directing rainwater into the garden covers 27 m². The garden collects water flowing down from the viaduct – discharged through four downspouts and a concrete trough – as well as runoff from the bike path and surrounding green areas. The garden consists of three parts: an infiltration basin (dry), where water seeps into the soil; a sealed basin (wet), which retains water on the surface and creates moist habitats for plants and animals; and a stream with a sealed bottom, which directs water from the viaduct toward the garden. Thanks to this solution, the space under the viaduct has gained a new function – it has become both a retention site and an attractive part of the park. The plants introduced into the garden include: dotted loosestrife (*Lysimachia punctata*), Siberian iris (*Iris sibirica*), purple loosestrife (*Lythrum salicaria*), dusky cranesbill (*Geranium phaeum*), orange coneflower (*Rudbeckia fulgida*), and lady's mantle (*Alchemilla mollis*). These species tolerate variable moisture conditions well and help purify water from pollutants. Additionally, incorporated boulders, stones, and wooden logs create habitats for insects, fungi, and small animals, supporting biodiversity in this part of the city.





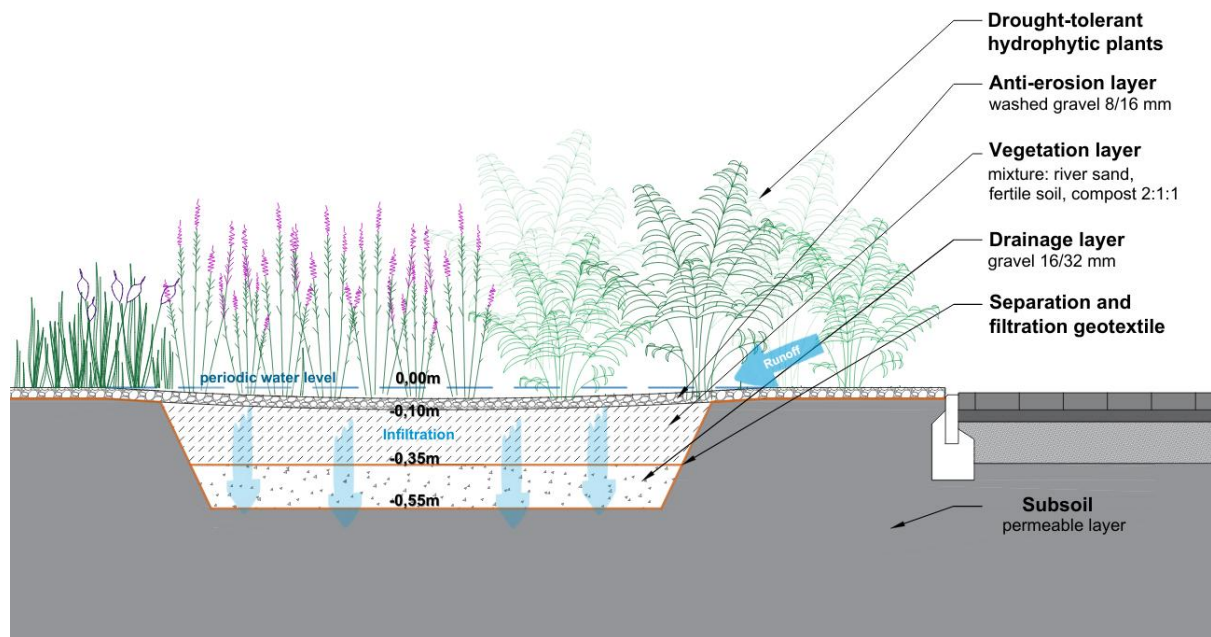
John Paul II Park - Rain Garden 2



Summer 2025

Centre for Culture “Peowiaków” - Rain Garden 3

At Lech Kaczyński Square, near the former monastic complex, a rain garden with an area of 37.2 m² was established. Its function is to capture rainwater from the roof of the building, which previously was discharged directly into the sewer system. The garden is designed as an infiltration type, meaning that water is retained in a specially prepared permeable substrate and gradually infiltrates into the soil. In this way, it not only supports stormwater retention but also enhances the aesthetic value of the surroundings, highlighting the architectural features of historic buildings. It was planted with native species resistant to fluctuating moisture conditions, such as meadowsweet (*Filipendula ulmaria*), dusky cranesbill (*Geranium phaeum*), Siberian iris (*Iris sibirica*), dotted loosestrife (*Lysimachia punctata*), purple loosestrife (*Lythrum salicaria*), and ostrich fern (*Matteuccia struthiopteris*). These plants not only decorate the space but also help purify rainwater from pollutants.





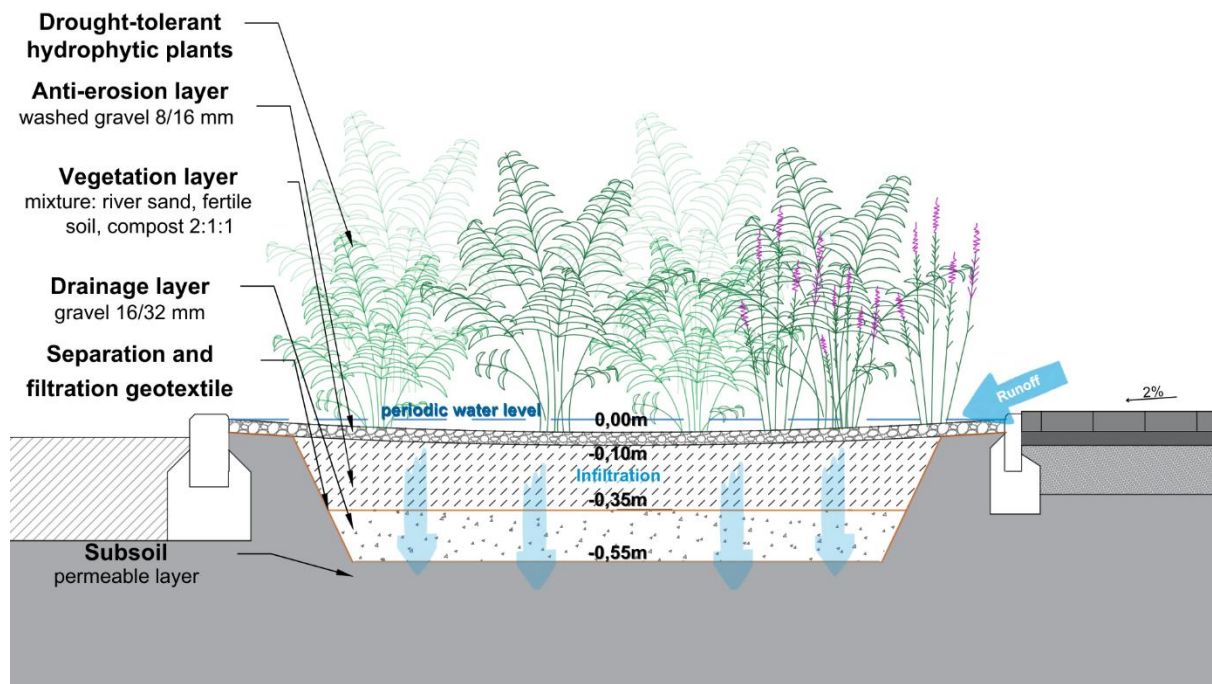
Centre for Culture “Peowiaków” - Rain Garden 3



Summer 2025

University Campus “Obrońców Pokoju” - Rain Garden 4

Along the roadside lawns of Obrońców Pokoju Street, five small rain gardens were created, ranging in size from 6.7 m² to 16.6 m², covering a total area of 49.8 m². Their main purpose is to retain rainwater in the soil, thereby reducing runoff onto the streets and lowering the risk of local flooding. The gardens were designed as infiltration-based, with permeable substrates that promote water absorption. They were planted with species tolerant of periodic flooding and drought: male fern (*Dryopteris filix-mas*), ‘Pariot’ hosta (*Hosta ‘Pariot’*), Japanese sedge (*Carex morrowii*), betony (*Stachys officinalis*), and Siberian iris (*Iris sibirica*). In addition to their retention function, they support the local ecosystem and improve habitat conditions for urban greenery.





University Campus "Obrońców Pokoju"- Rain Garden 4



Summer 2025