

Vlassenbroek Project

The Sigma Plan protects Flanders from flooding while bolstering estuarine nature.

The Scheldt is a tidal river. Twice a month, the ebb and flow dynamic causes a spring tide, which comes with higher water levels. If this coincides with a northwesterly storm at sea, the water swells even more and it becomes a storm tide. The Gale of January 1976 is a well-known example of a storm tide. Causing severe damage in the Belgian provinces of Antwerp and East Flanders, the storm convinced the government that better protection was needed. This resulted in a large-scale water safety project called the Sigma Plan. The Sigma Plan was updated in 2005. The objective remains protection against flooding but at the same time the Flemish government will restore and further develop

the tidal nature along the river. Vlassenbroek is part of the updated Sigma Plan.

Sigma Plan project along the Scheldt

Along the Scheldt in Dendermonde lies the Sigma project Vlassenbroek. This is the ideal location to give the Scheldt more room during storm tide, thereby protecting the entire region. The flood control area Vlassenbroek consists of 2 parts separated by a floodable compartmentalisation levee. While both areas act as a safety, the development of extraordinary nature is also important. Uiterdijk, an existing flood control area that is being depoldered, is located in the northeastern part of Vlassenbroek.

Location

Province of East Flanders, Baasrode (borough of Dendermonde)

River: Scheldt

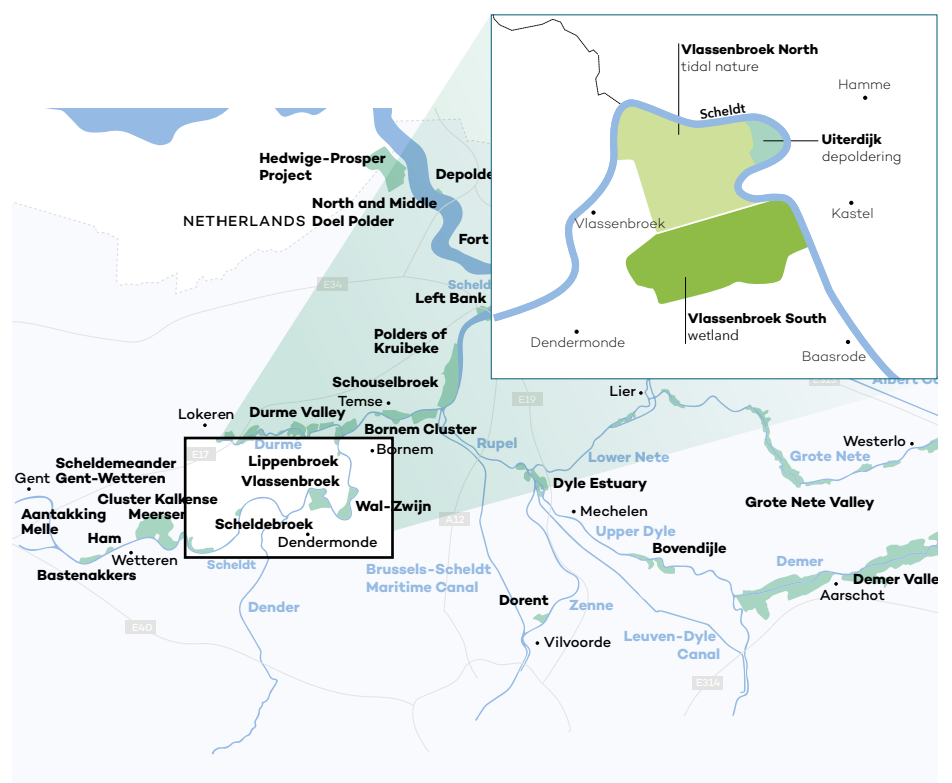
Surface area: 248 hectares

Measures

- Flood control area
- Flood control area with reduced tides
- Wetland
- Depoldering

Why?

- Flood protection
- Development of tidal nature and wetland (European conservation objectives)



What measures are being taken?

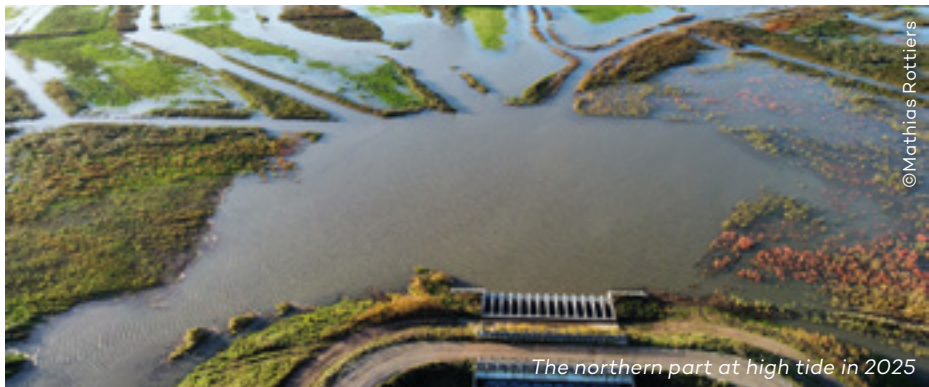
The project has a dual purpose: better flood protection for the region and restoring EU-protected nature to its original state. The compartmentalisation levee divides the approximately 248-hectare area into two parts. The northern section is an area with a controlled reduced tidal regime: via the bidirectional sluice a limited quantity of water flows in and out of the area on the tidal

rhythm. The southern section is not subject to a controlled reduced tidal regime but due to maintained high groundwater levels, it is essential to the development of valuable alluvial forest. And finally there is Uiterdijk, a 12-hectare flood control area in the northeastern part of Vlassenbroek. We are depoldering this area to allow water to flow in again to the tidal rhythm.

We are enhancing water safety in the region.

During storm tide the area will fulfil its safety function. The northern section will overflow in a controlled way via the (lowered) overflow levee. The overflow levee in the southern section has been built slightly higher so it will only overflow when the Scheldt reaches very high water levels, something that only occurs once every ten years. On the western and southern landward side of the ring levee, a new collection canal and two buffer basins ensure the drainage of the water coming from smaller upstream courses.

A modernized pumping station can also shift larger quantities of rainwater from the collection canal around the flood area. This way the residents are protected from flooding even in the most extreme situations.



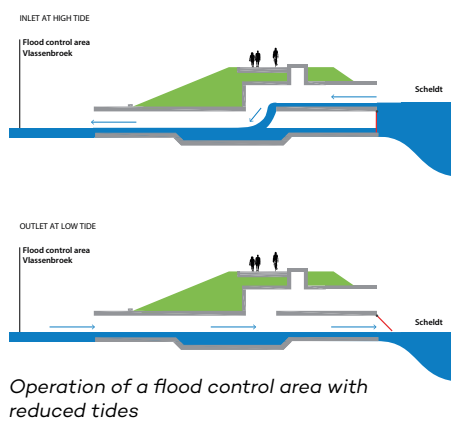
Flood control area

A flood control area is an area of flat land alongside a river that buffers water under extreme weather conditions. The water then flows into the area over an overflow levee, reducing the pressure on the upstream dikes. A ring levee always protects the hinterland to prevent any residential areas from getting flooded as well.



Controlled reduced tidal area

A number of flood control areas, such as the northern section of Vlassenbroek, are designed with controlled reduced tide, not only acting as a safety but also actively contributing to the development of tidal nature. A smart sluice system in the overflow levee is used for this purpose. At high tide, a high inlet sluice admits a limited quantity of water, just enough to trigger the development of tidal mudflats and tidal marshes. At low tide, the water flows back to the Scheldt through a low outlet sluice. This way the area ensures water safety while fostering the development of tidal nature.



Depoldering

Depoldering means giving back land to the river. First we construct a new levee inland. Subsequently we remove the old levee either partially or entirely and also make deeper breaches, creating additional room between the old and the new levee where the river can (over)flow. This additional buffering ensures that the water level does not continue to rise and reduces the risk of flooding upstream. As the tides are given free rein again, this also gives rise to valuable tidal nature.

Wetlands

Wetlands within the Sigma Plan are marshy areas that are not influenced by the tide. During winter, ground water levels are high there and they drop in summer. The landscape varies from open water and reed beds across alluvial forests to wet grasslands.



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European spoonbill



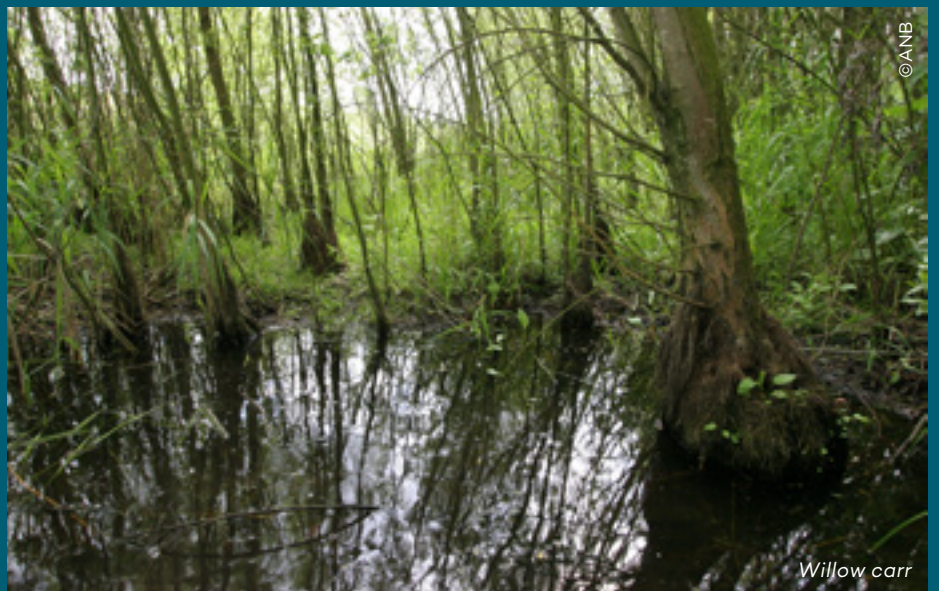
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Black kite



©Luc Meert

Bluethroat



©ANB

Willow carr

At the same time, we are restoring rare estuarine nature.

Thanks to a bidirectional sluice, water from the Scheldt will flow into and out of the northern part of Vlassenbroek every day, following the rhythm of the tides. Tidal areas are known for their exceptional diversity — especially those of the Scheldt: the alternation of tides, the unique transition from fresh to salt water, and the interplay of water, sand, and silt. In this world of contrasts, the river shapes a network of mudflats, salt marshes, gullies, and creeks. Each of these biotopes has its own typical inhabitants. The wetlands in the southern section are a top location for moisture-loving trees such as alders, ash trees and willows. In other places reeds spring up.

A haven for rare species

The fauna and flora in Vlassenbroek is highly diverse. It was one of the first areas where the beaver found a welcome home. You can also spot numerous songbirds there, such as the bluethroat, and occasionally even rare visitors: a lesser booted eagle, black kites, or species like the moustached warbler and the grasshopper warbler. In 2025, the most frequently observed species were the great egret, bluethroat, and European spoonbill. With the support of Natuurpunt's Heerenbosch, we also built a sand martin wall, as their population in Flanders has declined over the past 20 years from around 6,000–7,000 to just 2,000 pairs.



LIFE Sparc

Thanks to the Sigma Plan, the Scheldt valley is better equipped to deal with the consequences of climate change, such as rising sea

levels and periods of heavy rainfall. In Europe the Sigma Plan serves as a perfect example. That is why a number of Sigma Plan areas including

Vlassenbroek received additional EU funding through the LIFE Sparc project (life-sparc.eu).

Project name	Surface area	Municipality	Duration	Measure
Vlassenbroek	236 hectares	Baasrode (Dendermonde)	Operational flood control area 2025-2026	Flood control area Controlled reduced tidal area Wetland
Uiterdijk	12 hectares	Baasrode (Dendermonde)	2024-2027	Depoldering existing flood control area