

# AFTER THE GRAVEL RUSH

Set in the borderland of Belgium and the Netherlands,  
De Gouden Liniaal Architecten's earthen Negenoord  
observation tower commands views of a former gravel quarry  
imaginatively transformed into a nature park,  
writes *Christophe Van Gerrewey*









**The small observation tower affords views through strategically placed openings or from the rooftop terrace which is encircled by a metal balustrade**







**The central core houses seven precast-concrete flights of stairs and landings. The concrete was sandblasted to render the texture of the incorporated gravel more conspicuous**





**T**he Meuse is a 925-kilometre river – allegedly the oldest in the world – which rises in France, flows through Belgium and the Netherlands, and materialises parts of the border between the last two countries. It then drains into the North Sea in the extensive Rhine-Meuse-Scheldt delta. Particularly in the Netherlands, the river has been subject to damming and canalising: processes that will remain imperative in the coming decades, given the increased risk of serious winter flooding.

The soil in the Meuse basin contains minerals, stones and fossils from nearly every geological era, from the Cambrian to the Quaternary Period, brought along from higher areas in northern France, under the influence of frost erosion, chemical weathering and root pressure. The current propelled these masses of material, in a process that took thousands and thousands of years, like a liquid bulldozer, extremely slow but extremely persistent too. It is this ancient rubble that is responsible for the erratic course of the Meuse: the river was more or less forced to work its way through all of the ballast it could no longer carry.

Gravel – the gold of the valley of the Meuse – is, at least from an economical point of view, the most interesting granular sediment. (The Dutch word for gravel is *grind*, etymologically related to the English verb; in a sweet mix of European linguistic crossbreeding, the English word gravel appears to come from the French *gravelle*, most commonly used to indicate kidney stones.) If the rock fragments in this loose aggregation have a diameter between 2mm and 30mm, the sediment is called gravel; if the grains are smaller, sand is the correct name. Gravel is hard, pure and resistant to wear, which makes it very suitable for the (permeable) surfacing of roads, or for concrete manufacture. Completely inert, gravel contains no harmful chemicals, and it can be infinitely recycled with almost no extra treatment: after digging it up, merely washing and sorting out suffices.

No wonder then, that extraction began, at a modest scale, as early as the 19th century. This was along the roughly 40-kilometre long part of the Meuse between the cities of Maastricht (in the Netherlands) and Maaseik (in Belgium). The gravel rush really took off in the 1960s and '70s: Belgium needed huge amounts of building materials to construct its almost ridiculously intricate network of highways and road infrastructure; the Netherlands wanted gravel to produce all the concrete for the Delta Works – a national programme blocking estuary mouths of several rivers, and thus reducing the length of dykes exposed to the sea.

The results in Limburg, as the area between Maastricht and Maaseik is called in both the Netherlands and Belgium, were not



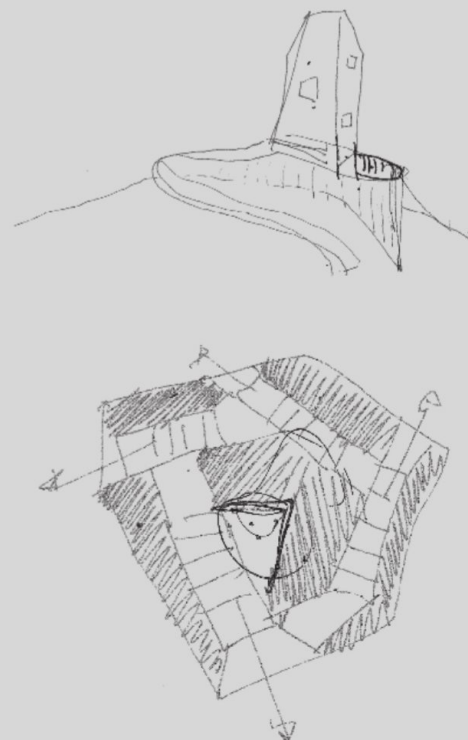
DE Gouden LINIAAL ARCHITECTEN

**The concrete central core (left) of the tower, incorporating the stairs, was erected first. The consultants decided the optimal ratio of gravel, earth and clay (left foreground) in a process of trial and error**

quite favourable. Photographer and landscape architect Erwin Christis wrote in a local magazine that, 'mastodons of bulldozers and trucks changed the region into a lunar landscape'. The machines were needed to excavate the grounds between the winter and the summer dykes of the Meuse; in other cases, ships with a rotating cutter head were deployed to loosen the gravel from the riverbed.

The result was the so-called Maasplassen, composed of 40 artificial lakes in Belgium and the Netherlands, mostly along the west shore, with a combined area of about 30 square kilometres. For decades, building industry entrepreneurs could do more or less as they pleased; in some cases, as journalist Raf Custers recounted last summer in the online magazine *MO\**, the 'gravel cowboys' were quite happy to collaborate with 'waste managers' as well, and some of the gravel holes were filled with toxic chemical waste.

Things changed, fortunately, during the '90s. The government founded a 'Gravel Committee', in which municipalities, inhabitants, farmer associations, gravel companies and environmental groups are represented. Financial compensation is deposited in a public 'Gravel Fund' each time a pebble leaves the banks of the Meuse. For a while, it even seemed as if all excavation projects would be prematurely aborted. Since the turn of the century, however, gravel extraction has been possible as long as it explicitly creates social added value, for example by means of irrigation systems for nearby agricultural lands, or when excavation can coincide with measures to combat flooding. In most cases, the deep lakes have been transformed into attractive and extensive ponds for sailing and swimming, or for the creation of new ecosystems. Following years of economic activity, this area is now almost completely





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at the disposal of holidaymakers, birdwatchers, walkers and nature lovers.

One of those nature development sites, part of a large floodplain intervention in the Maasvallei river park, is called Negenoord. It measures 1.5 square kilometres and contains two lakes separated by a dyke, part of a popular bicycle path. The Meuse runs close by, to the east; a former bend of the river borders the two lakes to the south and creates a small island ideal for walks, with birdwatching hides, benches, paths and land for small-scale agriculture, meadows and grazing Konik horses and Galloway cattle. In 2016, on top of an artificial mound (to protect the building so that even in the event of the entire area flooding it is above water level), an 11-metre observation tower was constructed, based on a design by Belgian office De Gouden Liniaal Architecten. With a building budget of €460,000, the brief, compiled by the committee for the restructuring of the Maasvallei river park, requested a building that could serve not only educational and recreational purposes, but that would also become a natural part of the existing landscape.

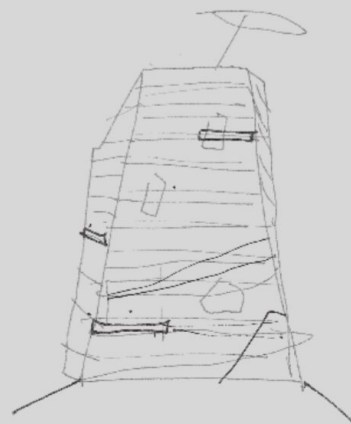
In an almost literal mixing of the concepts of both Critical Regionalism and Brutalism, gravel was the main building material. Although the central core with seven flights of stairs and landings is made out of precast concrete, the concrete was sandblasted to make the texture of the gravel inside more tangible and visible. The external walls were created, with the assistance of CRATERre, Vessière & Cie and BC Studies (the consultancy arm of BC Architects), with the rammed-earth building technique. Soil-damp earth (in this case a mix of roughly two-fifths ochre-coloured sand, two-fifths clay and one fifth gravel along with 6 per cent cement as a stabiliser) gets poured in layers of 150mm into a formwork, and is compressed mechanically to 120mm, creating the slightly rippling layers of the facade, characteristic of the technique. Some issues arose during building work: heavy rainfall and subsequent flooding delayed construction, and the original desire to use lime as a stabiliser (considered carbon neutral) had to be replaced by cement as the

contractor couldn't guarantee the necessary strength of the material. Working with rammed earth is still rare in Belgium – the tower in Negenoord is one of the first public earthen buildings in the Benelux region – and nearly all cases involve BC Studies as so-called 'earth consultants'.

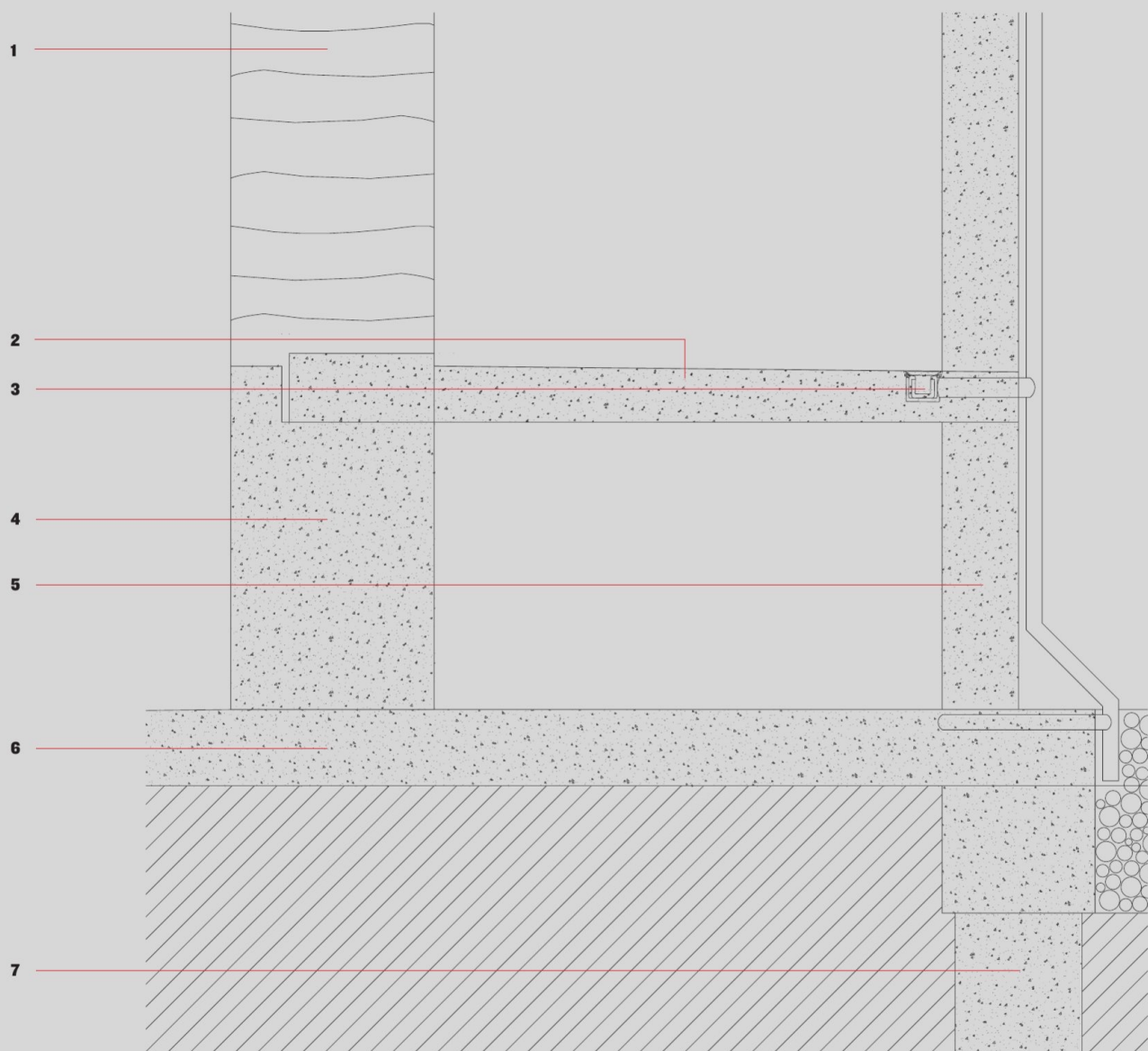
Structurally, the earth and the concrete core work together: the landings are connected to the concrete, but they rest on 800mm-thick walls of rammed earth. 'The surface of these walls will gradually erode', the architects said at the opening of the tower in January 2017, 'so the gravel will become visible after a while.' More than three years later, this is already the case for the sides of the tower most heavily exposed to rain and wind, to the extent that the gravel almost crumbles under too harsh a touch. This might as well be one of the desired effects – rather than communicating firmness, honesty or durability, rammed earth and gravel are expected to express here, or so it seems, a kind of self-neglecting transience, based on the intuition that this tower is neither aggressive nor harsh, not unnatural, and not even built to last – in time, it will be returned to the landscape whence it came.

In the meantime, the landscape of the Meuse is what every visitor to the tower can marvel at, through openings that frame the best available views, or from the rooftop terrace lined with a metal balustrade – a group of 30 people can stand here during a guided tour. And what does, exactly, this landscape look like after all that has happened (and didn't happen)? Like almost everywhere in Belgium, the scenery is neither extensive nor unspoiled, and even here a few individual houses are present, just in front of the dyke, as well as electricity pylons, a handful of wind turbines, and the tower of a nearby village church. But what dominates, nevertheless, is the surface of the water of the two connected lakes, in which the sky is impressively reflected. It is well known that Joachim Patinir, a Flemish Renaissance painter from the early 16th century, located many of his biblical or allegorical scenes – *Landscape with the Rest on the Flight into Egypt* from 1518 for example, or *Charon Crossing the Styx* 1520 – in an environment akin to his native region alongside the Meuse. In his paintings, the water of the river has a deep, unworldly, radiant colour – so-called Patinir blue. Depending on the weather, shades of that colour can still be discerned in the reflective water surface of the Meuse and its surrounding lakes. Like most post-industrial landscapes today, however, the view from the tower in Negenoord has no need for Mannerist or Picturesque flourishes. Simply by existing, it is proof of past exploitations of the earth and the soil, and of, therefore, a future that remains uncertain.

**The tower is strongly anchored in its environment. The 800mm-thick walls of the sand, clay and gravel composition were crafted from materials excavated from the area**







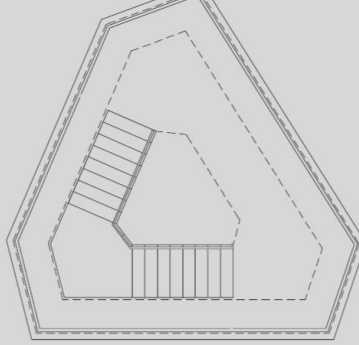
- 1 rammed-earth wall
- 2 prefabricated sloped concrete floor
- 3 stainless-steel conduit connecting to drain
- 4 concrete plinth
- 5 concrete core
- 6 concrete foundation
- 7 pile foundation



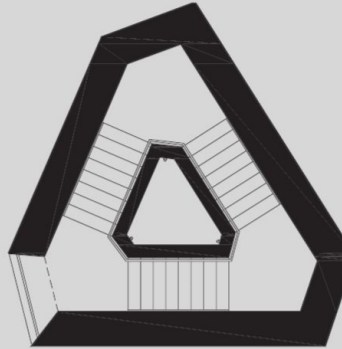




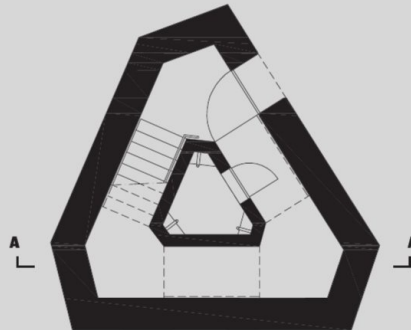
**Architect**  
De Gouden  
Liniaal Architecten  
**Earth consultants**  
CRAterre, Vessière & Cie  
and BC Studies  
**Photographs**  
Filip Dujardin, unless  
otherwise stated



rooftop terrace



first floor



ground floor plan

