



'Defence Line of Amsterdam' (provinces of Noord-Holland and Utrecht)

The World Heritage Defence Line of Amsterdam is a well-preserved example of how inundations (flooding) was done in combination with a circular defence line of forts as part of a permanent defence system. The Defence Line was inscribed on the World Heritage List in 1996.

Inundation lines were used in the Netherlands as a means of defence for centuries, even forming an important element in the circular defence line around Amsterdam. Forts were built along the access roads that remained passable after flooding and the most modern insights and materials of the day were used. Concrete was used for the first time for constructing forts, and the forts were provided with unobstructed fields of fire. A system of dykes, dams, sluices and pumping-stations served to inundate the frontland. In those days the Defence Line of Amsterdam was considered the most modern, extensive stronghold project in Europe. The circular defence line is approximately 135 kilometres long and has more than 40 forts, besides dozens of other works that still exist today. The line is still easy to discern and most of the forts remain in fairly good condition, partly because they were never involved in actual conflict, not even during the German invasion of 1940.

The Defence Line lost its military status after the World War II. In 1963 building restrictions in the areas around the forts were raised, after which some inundation zones and fields of fire were taken over by new housing developments and industrial parks. For the most part, the forts came to be owned by nature administrators, municipalities and private parties, but have suffered less than the inundation zones from new housing developments and road construction. In a number of cases they have acquired a new meaning, thanks to natural values that have developed over the years or due to their recreational use.

History of the Defence Line of Amsterdam

The Defence Line of Amsterdam is a circular defence line that was constructed between 1880 and 1914, at a distance of 15 to 20 kilometres from what was then the outskirts of the city of Amsterdam. It was constructed as a direct consequence of the Vestingwet (Fortification Act) of 1874, which drastically changed national defence policy. Some existing lines closer to the national borders were raised in favour of a heavier defence of the provinces of Holland and Utrecht and the capital of Amsterdam. The Defence Line of Amsterdam served as a 'National Escape', a last retreat for the government and army should another important defence line, the New Dutch Inundation Line, be breached. Forty forts were constructed within thirty years. They were generally situated near the accesses, which were dykes and other passable access roads in the inundation zone where the enemy could possibly break through. No forts were built from Edam to the vicinity of Amsterdam along what was then the Zuyder Zee coast. The Navy was responsible for the capital's defence. The inundation zones and free fields of view and fire of the forts were located outside the main defence line. Two coastal forts were built at each end of the North Sea Canal, which was opened in 1876: fort island Pampus to the east and Fort IJmuiden to the west. Both had an advanced position in relation to the actual defence ring. Dozens of other works, such as sluices, bridges, defence line ramparts, depots, etc., were also constructed as part of the Defence Line of Amsterdam.



An important aspect in the design of the circular defence line is that its construction was founded on scientific grounds and that physical trials were carried out to find solutions to problems. For instance, from 1885 the devastating effect of the recently invented high-explosive shell (grenades with high impact and delayed detonation) were taken into account in the construction of the forts. A new type of fort was designed made of concrete, with earth-covered bunkers instead of the brick forts that were still in use along the Dutch Inundation Line. Although the forts all varied, such as in size, the shape was basically the same – long and narrow - reducing the chance of being hit. Most of the forts were equipped with armoured gun turrets. Another new features was that the forts, situated at 3-kilometre intervals, had two bunkers at the back (at the entrance) to give the neighbouring forts support fire (wide flank). This, together with the inundations, created a closed front around Amsterdam.

An unobstructed view and field of fire were important for each fort's firing power. The enforcement of the 'Kringenwet' (Circle Act) of 1853 safeguarded these requirements. This law empowered the government to impose restrictions on building and planting in the so-called 'restricted rings' around the forts. Particularly the ban on building in brick within the first 300 metres of a fort had far-reaching consequences, especially because the Kringenwet remained effective until 1963. Hundreds of wooden houses and other structures were erected, which in case of war could be quickly demolished or set alight. Several examples of these 'Circle Act' houses still exist in this World Heritage area.

Dozens of sluices, flood-control dams, dykes, overflows and pumping-stations were constructed to regulate the water level of the inundations to within a fraction of a centimetre. Depending on the condition of the terrain and the local situation, water depths ranged from 50 to 150 centimetres, which was sufficient to conceal roads, ditches, channels and other obstacles. It was impossible to wade through and generally too shallow to navigate. Generally speaking, the water barrier was widest to the north and south and narrowest to the west. Remarkable was the foreseen inundation of a large part of the Haarlemmermeerpolder, the area south-west of the Geniedijk (defence line dyke) which was specially constructed for that purpose. The areas intended for inundation were an integral part of the Defence Line of Amsterdam, which would have been much harder to defend without this special Dutch expertise.

Facilities were installed and provisions provided in the circular defence line for the soldiers to hold out during a long siege. There were three ammunition factories (Muiden, Ouderkerk aan de Amstel, and Hemveld near Zaandam), and much attention was paid to providing drinking water, food, fuel, medicines, and other supplies. Besides storehouses for these provisions, barracks were built and hospitals were expanded or adapted. In principle the Defence Line had to be able to endure a nine-month siege; the hope was that allies would arrive to relieve the Defence Line of Amsterdam.

When the Defence Line of Amsterdam was almost completed at the outbreak of World War I in 1914, it proved to have lost much of its military value. The course of battles in Belgium and France – especially the prompt capture of the forts at Antwerp – provided new insights with respect to the existing defence works. For example, artillery had acquired a much longer firing range and the explosive power had increased to such an extent that the non-reinforced, two-metre-thick layer of concrete applied to the Defence Line no longer sufficed. Consequently, the last forts were not completed. However, inundation as a means of defence remained in use. A decentralised defence system with distributed concrete bunkers and other small deployments was deployed in place of the concentrated system based on forts that had been used until then. The Defence Line of Amsterdam was adapted to this system during and after World War I. The centre of the defence soon moved to the east and south; military attention was aimed more at the army's defence of the country's borders.



From a military viewpoint, the Defence Line of Amsterdam had been succeeded by the much larger Vesting Holland (Holland Stronghold), enforced by law in 1922, thus terminating the Defence Line's function as a 'National Escape'. However, the northern front of the Defence Line of Amsterdam was still inundated at the beginning of World War II during the German invasion in May 1940. This front coincided almost entirely with the northern front of the Vesting Holland. The forts were only secondary defence works at that time, serving mainly as accommodation for troops. Only the south-eastern part of the Defence Line, which coincided with the New Dutch Inundation Line, was actually operational. During the occupation from 1940 to 1945 the armoured gun turrets were removed from most of the forts and melted down for the German war industry. As hard as it may sound, it was the German occupiers who in 1944 and 1945 activated part of the Defence Line of Amsterdam, inundating the northern and western fronts in particular. They were part of the so-called Vordere Wasserstellung (Front Inundation Line) and of the Neue Landfront (New Territory Front). After the war, sections of the Defence Line of Amsterdam were used in the context of the Cold War, for example as storehouses, as shelters for equipment and for several military and non-military purposes. Some of the forts also served to incarcerate members of the Dutch National Socialist Movement (NSB) and other collaborators shortly after the war.

The Defence Line of Amsterdam today

Most of the forts and other parts of the Defence Line of Amsterdam were disposed of starting around 1960. Many were already privately owned, and the restrictions on the 'restricted circles' were raised. In some cases this resulted in extensive construction projects of buildings and infrastructure: business parks, harbour works, hydraulic interventions, roads and residential areas, particularly in the Haarlemmermeerpolder. Despite these encroachments, which were greater threats to the survival of the Defence Line of Amsterdam than any military aggression, the structural parts of the Defence Line remain in fairly good technical condition.

Recognition as an international monument contributes significantly to preserving and possibly strengthening the recognisability of the qualities of the Defence Line of Amsterdam, which made exceptional use of the potential inherent in the Dutch landscape with its abundance of water. Inscription of the Defence Line of Amsterdam on the World Heritage List means the Dutch government has an obligation to preserve the site.

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