

Application for the IAPH Port Environment Award 2017**LUNEPLATE – A unique natural paradise and valuable green port infrastructure**

Overview of the Luneplate area (Photo: bremenports)

Valuable sites for flora and fauna have had to be used for the implementation of port expansion and infrastructure projects. To compensate for the negative impact of the change of use of these nature areas, to satisfy its own corporate responsibility standards and promote the protection of nature and the environment, bremenports has drawn up and implemented comprehensive compensation measures in the Luneplate area over the last 25 years. The aim was to create effectively functioning compensation sites and take targeted action to establish a unique habitat for a large number of (often endangered) animal and plant species. The Luneplate project is the first project to implement large and varied tidal habitats behind the main dyke in connection with a special flood barrage. Additionally, in the years 2014 and 2015, bremenports has designed and introduced an extensive visitor scheme which raises the awareness of the general public and encourages it to participate, whilst upholding nature conservation policies.

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1. Background and description of the project

bremenports GmbH & Co. KG (bremenports) is the port infrastructure management company for the ports of Bremen and Bremerhaven. bremenports manages the port infrastructure on behalf of the Free Hanseatic City of Bremen and is responsible for providing intact infrastructure; in other words, bremenports plans, constructs and maintains the port infrastructure and leases the port properties and quay facilities to terminal operators and other logistics companies.

In the course of fulfilling these tasks, several extensions of the port infrastructure [Container Terminal (CT) III: 1994-1997; CT IIIa: 2001-2003; CT IV: 2004-2008] and other local infrastructure projects in Bremerhaven led to land requirements in the sensitive Wadden Sea environment. These projects damaged valuable nature sites, affected local recreational and residential areas and created the challenge of reconciling these different interests in order to enable co-development. Accordingly, bremenports had to raise awareness of environmental aspects and social needs and ensure that these were treated with due care and professionalism. bremenports developed a master plan for the gradual implementation of compensation measures to integrate compensation requirements with reduced economic development plans for the Luneplate.

The Luneplate (approx. area 1600 hectares) is located in the south of Bremerhaven, where the River Weser flows into the North Sea. It adjoins the extensive Wadden Sea areas. The compensation area currently covers approx. 1060 ha. The Luneplate project is an example of successful compensation which consists of four different main areas:

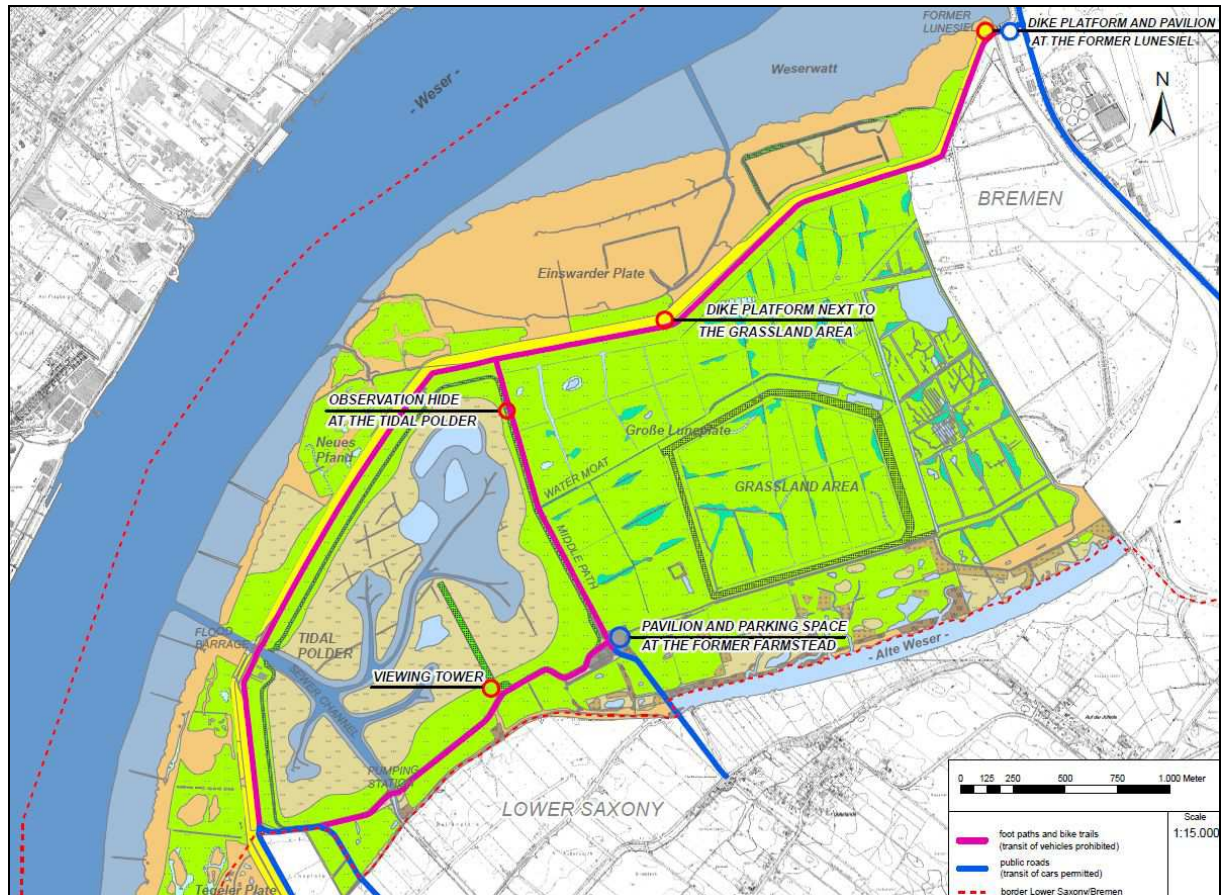
- outer dyke areas,
- grassland area,
- tidal polder and
- the area beside the “Old Weser”.

The diversity of these different sites, which merge into one another, offers a habitat for various (often endangered) species.



The Luneplate area is a popular roosting place for different geese species (Photo: Thomas Wieland)

The development and implementation of the Luneplate project to create habitats for a large number of plant and animal species began more than 25 years ago. The Luneplate project consists of a large number of interlinked measures and reflects the fundamental idea of ensuring sustainability. The milestones of this unique project are presented in detail in Chapter 4. The latest measure within the course of the complex Luneplate project was carried out in the years 2014 and 2015 and involved devising and implementing a visitor concept which provides the general public with extensive opportunities for participation.



Map showing compensation sites on the Luneplate including various information and visitor facilities

2. Purpose/Objective

Undeveloped, natural sites were required in the course of implementing infrastructure projects in the ports of Bremen. To compensate for the change of use of these sites, one of the measures implemented by bremenports was to create suitable compensation sites on the Luneplate with the aim of redressing the loss of functioning habitats and creating new tidal habitats. To achieve these targets, the company first had to find appropriately large and suitable compensation sites without generating negative impact for the local farmers. Comprehensive measures had to be planned and executed before these sites could actually be transformed into adequate habitats. To create substitute habitats for indigenous and often endangered species, bremenports had to consider many different aspects, such as preserving the (genetic) biodiversity, unique character and beauty of the region and maintaining the functionality of its ecological systems. Monitoring reports are prepared regularly to verify the achievement of these objectives.

A further objective of the Luneplate project was to involve the diverse stakeholder groups (e.g. nature conservation authority, environmental organisations, farmers, local population and other public authorities) at an early stage, to take their wishes into account and make use of their

combined expertise to promote successful implementation of the project. All stakeholder groups were actively involved in their specific roles in the entire planning, approval, construction, execution and monitoring processes, which were accompanied by informal round table meetings and public information events.

Another important objective was to make the Luneplate attractive to visitors. The Luneplate was to provide a recreational area for the general public, allowing people to experience the beauty and unique character of this nature area and consequently raise awareness of the topics of environmental protection and nature conservation.

3. Beneficiaries/Audience

The Luneplate project is a best-practice example of concentrated compensation. Connected compensation areas have the advantage of reducing the operational effort required for design, approval, construction and development and of maximizing the positive ecological effects. The Luneplate is a nature reserve which is home to a wide range of species of animals and plants, many of which are endangered. The development and protection of such areas generates significant added value for society. Moreover, projects such as this indicate our willingness to assume responsibility for future generations.



Tidal polder at low tide (Photo: Uwe von Bargaen)

The compensation sites also benefit the local population as well as visitors and other interested parties. The extensive area, with its variety of natural scenery and biodiversity, provides extensive opportunities for people in search of recreation. In the interests of achieving the optimum combination of informing the general public about the Luneplate project and raising public awareness of nature conservation and related topics, a comprehensive visitor concept was developed as part of an integrated management plan. This included, for example, an information pavilion, a viewing tower and various observation facilities, including a hide. Numerous information

boards have been installed to inform visitors about the Luneplate area and its unique flora and fauna.



Viewing tower with a height of about 11 metres (Photo: Thomas Wieland)

The local farmers also benefit from development of the Luneplate in line with nature conservation targets. Local farmers now use the Luneplate compensation sites that they would otherwise have lost if this area had been industrialized (win-win solution). Extensive all-year grazing for water buffalo and Galloways has made the change in land use visible and helped the farmers to accept the new development by providing new local products.



Water buffalo (Photo: Thomas Wieland)

Furthermore, the Luneplate project laid the foundation for making the comprehensive consideration of environmental and social concerns a part of our strategic business decisions. The project changed the port authority's viewpoint from the obligation to compensate to an obligation to develop and maintain our own "green port infrastructure".

The successful implementation and considerable results of the Luneplate project inspired us to develop our "greenports strategy". To us, sustainability consists of developments that are economically, environmentally and socially aware in equal measure and thus ensure the future

viability of our ports. By implementing our sustainability strategy, we wish to promote sustainability in port management, in the port area and, if possible, also in the port industry and logistics. Our objective is for the port to achieve carbon-neutrality. Projects like the Luneplate support this goal as they work as carbon sinks.

All in all, our Luneplate project stands for commitment to biodiversity and for the active involvement of the interests of the local public, local farmers and nature protection NGOs in line with the economic interests of the ports of Bremen.

4. Methodology and realization of the project

The long-term project of developing the Luneplate into a natural area that serves as a habitat for many different species started with four initial compensation sites (1991-1998) with a total area of 379 hectares. When the need for further compensation became apparent from 2000 to 2003, 230 hectares of compensation sites were planned and 11 hectares were realized. In 2003, a special master plan for the Luneplate was finalized.

Between 1992 and 2012, huge areas of arable land were converted into outer dyke wilderness areas, a tidal polder and extensively used wet grassland. To secure a balanced water supply for the grassland, the ditch system was extended and wind-powered pumping stations were installed.



Wind-powered pumping station in the grassland (Photo: Thomas Wieland)

A huge flood barrage was finished in 2012 before the tidal polder could be opened to the Weser. The special design of the tidal polder will also be effective in terms of climate change. New mudflat areas have been created behind the dykes, providing new habitats for endangered estuary species even when the sea level rises. It is still unique to find these permanently connected tidal habitats behind the dyke line. The barrage is only closed at storm tides to guarantee protection of the hinterland.



Storm flood barrage and tidal polder at high tide (Photo: Uwe von Bargaen)

From 2004 to 2012, the Federal States of Bremen and Lower Saxony developed a corporate master plan for the Luneplate. This incorporated the development of port-related industrial areas and the use of remaining compensation options and a further 593 hectares of compensation sites were planned and constructed. In 2008, bremenports started to offer guided tours of the Luneplate to involve the public in the development process, to inform the stakeholders and to show them the progress and incredible achievements that had been made. These tours take place up to 10 times a year and are guided by environmental experts from bremenports.



Stakeholders take part in a guided tour (Photo: Thomas Wieland)

From 2014 to 2015, bremenports and the responsible nature authority commissioned an integrated management system in order to coordinate the overall management. This was the basis for the installation of the comprehensive visitors' concept, including information pavilions, a viewing tower and different observation possibilities.



Observation hide (Photo: Thomas Wieland)

While some areas are undergoing maintenance right now, other areas will not be fully developed until 2027. This underlines the long-term perspective under which the Luneplate project was designed.

Since February 2015, the Luneplate, which meanwhile belongs mainly to the Federal State of Bremen (1438 ha), is a designated nature protection area and contains the EU Bird Habitat Site “Luneplate” (DE 2417-401) and the EU Habitat Site “Weser bei Bremerhaven” (DE 2417-370).

Ongoing monitoring will enable us to develop this valuable recreational area to the target state (characteristic estuary habitat area with a large number of typical endangered species) and secure the protection of the Luneplate area over the long term. We are optimistic that our project will continue to enjoy the support of politicians and other relevant stakeholders in future.

5. Evaluation/Analysis

On the Luneplate, land which was formerly intensively farmed and of low value for the ecosystem, the landscape has been converted into valuable habitats for flora and fauna following the implementation of compensation measures which are geared to nature conservation. These measures have also led to the development of a site with high recreational value. The project is subject to regular monitoring to evaluate the condition of the sites and verify target achievement and the findings are published in comprehensive monitoring reports.

89 species of breeding birds and 152 species of migrating birds occur on the Luneplate. The Luneplate area is of great importance for the East Atlantic bird migration as it serves as an important roosting place for many bird species. Because of their high biological value, the Luneplate sites have meanwhile been officially designated as a Bird Habitat Site, FFH area and, since 2015, a nature reserve. The Luneplate provides a resting place for an impressive range of around 70 species of water fowl and wading birds. The most important include not only tens of thousands of barnacle geese in winter and thousands of avocets in late summer, but also very rare species such as golden plover, curlew, bar-tailed godwit, ringed plover, widgeon and teal as well as spotted redshank, confirming the importance of the Luneplate for birdlife. Other migrant birds include great egret and spoonbill, which have only discovered Luneplate as a resting place in recent years.



The Luneplate area is of great importance for the East Atlantic bird migration
(Figure: Adam Nowara)

In spring, the grassland areas provide a breeding site for numerous meadow birds such as lapwing, redshank and black-tailed godwit; water fowl such as northern shoveller, widgeon and garganey are to be found on the banks of the ponds. The extensive reed beds provide cover for numerous species including water rail, marsh harrier and bluethroat, while “Alte Weser”, an old arm of the Weser, provides a habitat for kingfisher, green woodpecker, and cormorant as well as various species of frogs, dragonflies and bats.



Avocets together with oystercatchers, ruffs, common redshanks and black-tailed godwits
(Photo: Thomas Wieland)

Instead of the former monotonous arable land and intensively farmed grassland, the Luneplate is now a near-natural estuary habitat which can evolve undisturbed with reed beds and other succession areas, tidal mudflats which are criss-crossed with channels and other tidal water systems. The Luneplate also has extensively used grassland and ditch sites, which are grazed by water buffalo, Galloways and black pied cattle and have the appearance of characteristic pastureland. The Luneplate is also a special habitat for the following plants which need brackish mudflats, reed beds and/or flood plains: saltmarsh bulrush, soft-stem bulrush, water reed, sea aster, salt rush, sea wormwood, sea arrowgrass, slender spikerush, brass buttons, reflexed saltmarsh grass and bulbous foxtail.

People in search of recreation make good use of the facilities for guiding visitors and providing an experience of nature on the Luneplate, especially during the summer months.

bremenports offers around 10 guided tours per annum, most of which are open to the general public and are attended by approx. 20 – 40 persons each. During the guided tours in 2015 and 2016, the participants consistently praised the architectural design of the visitors' guide facilities as well as the opportunities for nature observation which these buildings and amenities provide. The viewing tower was actually shortlisted for the German Architecture Award in 2016.

Ornithologists repeatedly praise the observation hide which provides a very special opportunity for observing rare birds. Animal photographers frequently use the hide as it enables them to observe the animals at close quarters. When the semipalmated sandpiper, a species which is very rarely seen in Germany, could be observed in the tidal polder in summer 2015, the observation hide became a meeting place for ornithologists from all over Germany.

Efficient signposting ensures that people looking for rest and recreation are guided to those parts of the nature conservation areas which are suitable for visitors. Mapping of the breeding and resting bird colonies has shown that visitors to the Luneplate do not cause any relevant disturbance for the bird population.

The Free Hanseatic City of Bremen has also included the Luneplate in its cycling tourism scheme. In 2016 it published a cyclists' map which included the observation facilities on the Luneplate as the main destination. This shows the attractiveness of these amenities for guiding visitors and experiencing nature, in particular for cyclists.

The objectives of these measures are fully achieved to the intended extent. Guiding the visitors to specific areas avoids disturbance of the local fauna. Both residents and tourists have the opportunity to experience a distinctive landscape with rare species of plants and animals from well-designed viewing points. This has made the landscape come alive for visitors, who are informed about the interaction of the different areas and species and can see for themselves that near-natural landscapes are beautiful and worthy of preservation.

The winning of the ESPO Award 2016 is a further indication that the Luneplate project is unique and makes a significant contribution towards the protection of an exceptional habitat for highly diverse animal and plant species.