



Portfolio **COASTS AND WATERWAYS**

Your Infrastructure Partner



“ WHERE WATER MEETS
LAND, WE ARE BUILDING
THE FOUNDATIONS OF
TOMORROW



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“ TOGETHER WE ARE CREATING
SUSTAINABLE ENVIRONMENTS
THAT ARE BUILT GREENER,
BUILT SMARTER, BUILT FOR ALL

HOLCIM

WHAT DO WE STAND FOR?

Where water meets land, we are building the foundations of tomorrow with **strength, stability and integrity**. The mitigation of the impact of climate change is a major challenge and a key driver for the development of our smart and resilient solutions. Our dedicated team of experts deliver sustainable construction solutions to our partners by designing and supplying quality concrete products and armour stone for the development of their coastal, river and port projects worldwide.

WHAT CAN WE DO FOR YOU?

At Holcim, we are finding new ways of improving revetments to strengthen embankments, dikes, dams, waterways, shorelines,

rivers, canals, bridges and ports to prevent failure and scour. Holcim solutions are designed to help construction contractors deliver high quality structures and facilities on-time and cost efficiently, using versatile materials and techniques that are friendly to the environment. **Together we are enhancing cities, communities and nature as we transition to a more sustainable future.**

A WIDE RANGE OF INNOVATIVE SOLUTIONS

You need to keep business moving while renovating existing infrastructure or developing new networks. We help you build efficient, sustainable, and aesthetic infrastructure for goods and people with minimum disruption. We work with you from the design phase forward, to match our innovative and versatile materials to your needs, guaranteeing the reliability of our world-class service.

Holcim offers a wide range of innovative solutions for the coastal engineering, river protection and infrastructure construction segments. From erosion protection and sloping construction to decorative applications, we have it covered with our all-purpose products that lend themselves to endless applications in the construction environment. We are cooperating closely with renowned experts, such as biologists and landscape architects in order to boost the marine biodiversity of our solutions.



credit photo: Delta Flume Deltares



credit photo: Julien Dalle, Seaboost

OUR SOLUTIONS

You get tailor-made durable solutions. For each application, we have a wide portfolio of construction possibilities and our specialists will support you to select the most suitable solution for your project.

ARMOUR STONE

Armour stone is natural quarry stone, chosen for its durability and resistance to wear and erosion. Our armour stone is quarried by drilling and blasting in our quarries all over the world. We are able to provide different materials and sizes as riprap for shore protection and breakwaters. And we provide the aggregates and sand as raw materials for concrete. We also specialise in recycling construction and demolition waste to make high-quality aggregates, reducing the need for quarrying.

BASALTON

Basalton is made of concrete columns that provide stability and increase the integrity of foundations and is one of the world's best-selling revetment stones. The Basalton concrete columns are a high-quality replacement for the traditional basalt columns. They protect dikes and coastlines against erosion

from strong currents and wave activity. Basalton is used in road construction as well and can be applied vertically for decorative purposes.

BETOMAT

Betomat is a flexible concrete block mattress. In general, the concrete block mats are used to protect banks and embankments against erosion from currents and / or waves. The mats can be installed both above and below water and give the construction stability. They can also be used off-shore to protect pipes and cables lying on the seabed.

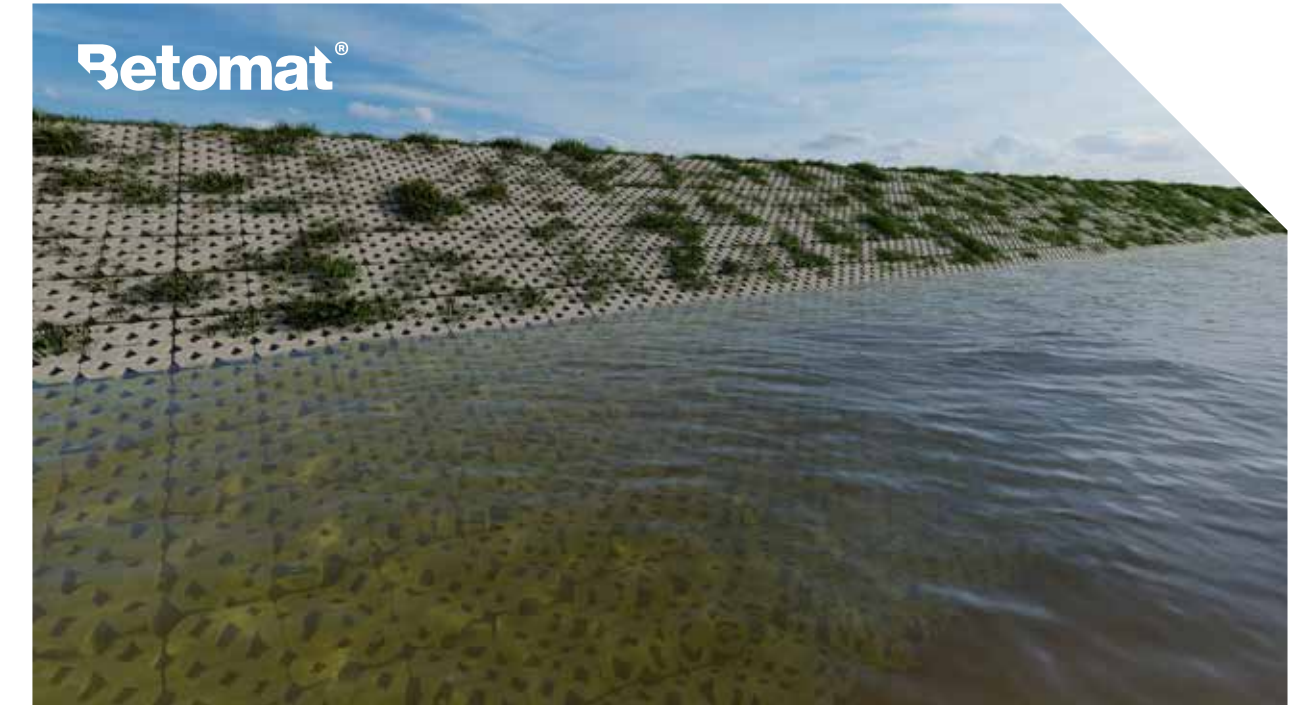
BETOWALL

Our products can also be used for aesthetic purposes by creating decorative vandal-proof wall elements. Individual Basalton columns can be used for a solid decorative finish in gardens and around buildings. In addition, the prefab Basalton wall gives a nice finish along quays and can refresh any canal, marina or river wall. With our new Betowall product range, we can offer standard concrete wall elements with prints, bricks, eco layering and even lighting.

Armour Stone



Betomat®

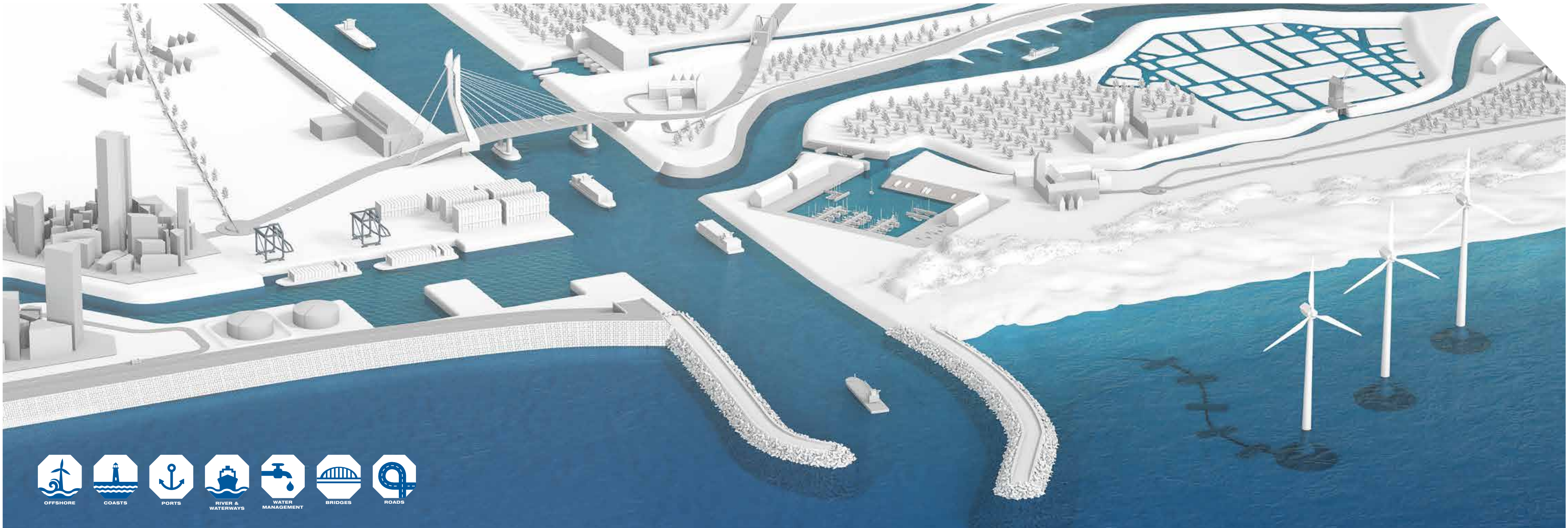


Basalton®



Betowall™







**“ OUR FULL RANGE OF ARMOUR
STONE ROCK PRODUCTS
MEETS CURRENT INDUSTRY
STANDARD SPECIFICATION**

DISCOVER OUR ROCKS

Armour stone is a natural quarry stone, chosen for its durability and resistance to wear and erosion. The sizes range from 45mm to 10+ Tonne rock and can be used for various applications.

Our full range of armour stone rock products meets current industry standard specification. We also offer various supply sources which means there are different pigmentations for you to choose from, due to composition and petrographic makeup of the various quarries. We have an extensive logistic service that allow us to deliver armour stone by sea, road or rail direct to your project all across Europe. Armour stone is being applied for shore protection, groynes and breakwaters. It can be either directly placed, dumped or placed with the use of gabions. Also gravel, sand and other fine gradings can be provided by Holcim.

Our companies operate under their own national company name, but are all proud members of the Holcim Group.

Armour Stone



WHICH PRODUCT TO CHOOSE?

Our quarries are located in the UK, Germany, Belgium and other locations around the world. We follow the international standards, like BS EN- 13383: 1 – 2002 and TLW 2003. We are able to supply various types of material, such as Basalt, Basanite, Limestone and many others. Distribution defined by nominal and extreme limits, with regard to size or mass of individual stones. Heavy, light and coarse gradings are distinguished.



Coarse grading (mm)	Light grading (kg)	Heavy Grading (kg)
45 - 125 mm	5 - 40 kg	300 - 1000 kg
63 - 180 mm	10 - 60 kg	1000 - 3000 kg
90 - 250 mm	40 - 200 kg	3000 - 6000 kg
45 - 180 mm	60 - 300 kg	6000 - 10,000 kg
90 - 180 mm	15 - 300 kg	10,000 - 15,000 kg

PROJECT WEST BAY

SeaRock, a new joint venture between Aggregate Industries and Earlcoate construction, completed an impressive delivery of armour stone to protect Dorset's picturesque West Bay, for principal contractor BAM Nuttall. The project was part of a £9 million coastal defence project, funded by Defra, West Dorset Council and Wessex Regional Flood Defence Committee.

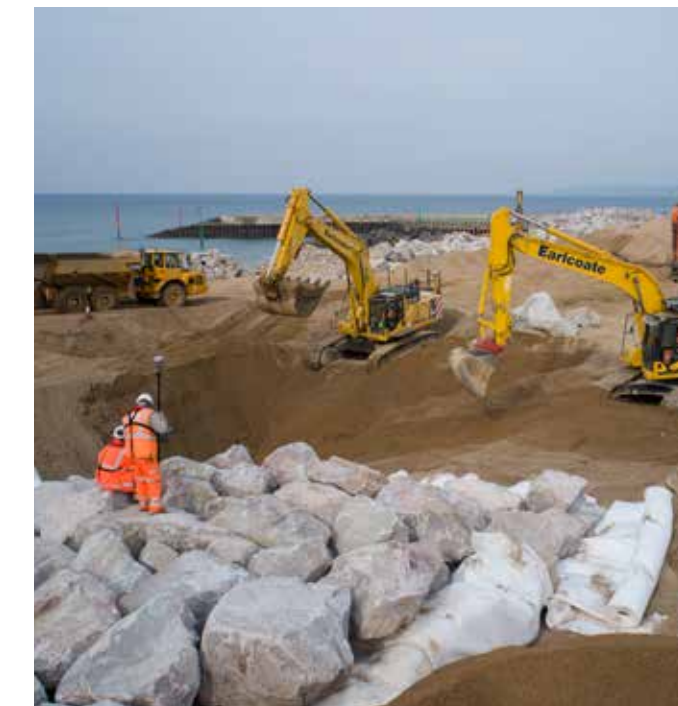
West Bay, on Dorset's Jurassic Coast World Heritage Site, had been eroding rapidly, but delivery of 36,000 tonnes – with each individual stone weighing between 0.3 and 10 tonnes – will halt the damage.

The armour stone derived from Aggregate Industries' renowned super-quarry in Glensanda, Scotland, where it was loaded onto a waiting vessel – the Mobile Pearl – in full. The Mobile Pearl then travelled 500 nautical miles to the agreed offshore anchorage position, 1.4 miles outside the Dorset coast's Marine Conservation Area.

Armour Stone



“ 36,000 TONNES OF
ARMOUR STONE
HALTS THE DAMAGE
TO WORLD HERITAGE
SITE WEST BAY



FACTS

PROJECT	WEST BAY, DORSET JURASSIC COAST, UK
DURATION	2018 - 2019
QUANTITY	36.000 TON – GRADING BETWEEN 0.3 – 10 TONNE
CLIENT:	BAM NUTTAL

REFERENCES & LOCATIONS

A small overview of Holcim Hard rock quarries per country:

- **Germany** 2 quarries in Dortmund and Dusseldorf areas, Road access
- **Belgium** 4 quarries, Carrière du Milieu is Rail connected
- **UK** in addition to Glensanda, 2 other quarries - Torr (rail connected) and Bardon Hill
- **France** several quarries in the south of France, manufacturing and supplying rocks/ripraps (e.g. Villeneuve quarry). A new quarry in Bretagne is offering the production of certified rocks/riprap.




We have an extensive logistics service which ensures we can deliver our products throughout Europe by road, rail and sea. Where possible, we aim to minimise the environmental impact associated with the transport of products. Apart from our own quarries and product locations, we have a trading company, which is able to offer you turnkey solutions for construction materials including logistics.



**“ SUPPLYING AGGREGATES ACROSS
EUROPE FROM OUR UNIQUE
GLENSANDA QUARRY**





**“ THE BASALTON REVETMENT WAS
DEVELOPED BASED ON THE
BASALT COLUMNS AT THE
FAMOUS *GIANT’S CAUSEWAY* IN
NORTHERN IRELAND**

NATURE SHOWED US THE WAY

Basalton is the concrete version of natural stone basalt and is used by our partners for the protection of dikes and embankments. The modern Basalton revetment was developed based on the basalt columns at the famous “Giant’s Causeway” in Northern Ireland, which have been protecting the coastline against waves and currents for millions of years. The Basalton concept consists of individual concrete columns that are joined together in layers to form a strong revetment.

Basalton is a proven product for coastal and inland revetments for over more than 45 years in The Netherlands and beyond.

Basalton[®]

WHICH PRODUCT TO CHOOSE?

In general, the size of product you need is subject to the external loading, such as wave height and current strength.

FSTAB is a stability factor used in the calculation program Steentoets developed by Deltares for the design of the armour layer (e.g. concrete revetment stones) of dikes and revetments. The stability factor is based on extensive hydraulic tests at the Deltares facilities. Deltares is an independent institute for applied research in the field of water and subsurface. Their main focus is on deltas, coastal regions and river basins.



BASALTON QUATTROBLOCK

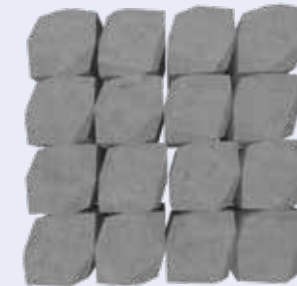
Our Basalton Quattroblock is the most stable block revetment currently available. This innovative block is a further development of the already well-known Basalton column, designed to further improve revetments and strengthen coastal embankments.

Dike developers have long understood that vertically adjacent columns give such revetments greater stability than other building methods. This inspired us to develop the modern Basalton Quattroblock with four basalton concrete columns forming one quattro block element.



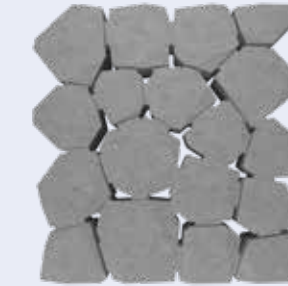
BASALTON STANDARD

The Basalton Standard is a block revetment supplied in sets, consisting of 18 different columns that together have an area of approximately 1.3 m². Typical for the standard sets is the parallel straight top and bottom. This allows them to be placed directly against a toe construction. The second set then connects to the lower set, which is also provided with a straight side. Furthermore, the straight top and bottom of the sets allow for curves in the revetment.



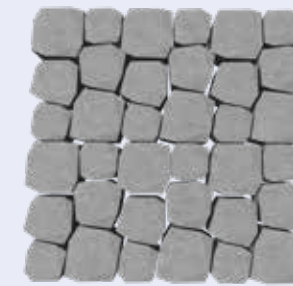
BASALTON REGULARS

Holcim developed the Basalton Regulars, because it is not always possible to finish the block revetment at the upper part with a full set of Basalton Standard, making manual work necessary. These can be placed per row, with a row width of approximately 27.5 cm and a width of 110 cm. The Basalton Regulars are supplied on pallets consisting of 16 columns per layer (4 rows of 4 columns). The columns can be placed per row using a sorting grapple.



BASALTON SLAB

The Basalton Slab can be used underwater and can also be used as a bank defence. The slab consists of 18 columns that are connected to each other, but still have an open space of approximately 10%. The slabs can be used as a bottom protection or a toe protection of a dike. The Basalton Slab can be placed accurately with a sorting grapple or a stone clamp.



BASALTON INFRA

Finishing the slopes under viaducts with Basalton creates a low-maintenance defence that has a beautifully finished surface and is vandal-proof. The range has 36 stone per set in 3 different sizes to guarantee the flexible covering of various geometric shapes. The sets can be operated both manually and mechanically. Because the average column is smaller than the Basalton Standard, the weight per column is also lower, making it easy to install manually.

This product is supplied in split packages so that it can be processed by machine with a clamp.

PROJECT AFSLUITDIJK

The new Basalton Quattroblock is being used for the renovation project of the Dutch Afsluitdijk, a 32km long closure dam. In total, about 700,000 m² will be covered by the Quattroblocks. The Afsluitdijk will stand as an icon of this century for quality Dutch hydraulic engineering.

The renovated Afsluitdijk will be able to withstand a superstorm of once in 10.000 years. Different column heights have been used to increase the surface roughness to reduce the wave run-up.



FACTS

PROJECT	AFSLUITDIJK THE NETHERLANDS
HEIGHT	DIFFERENT COLUMN HEIGHTS
QUANTITY	700.000 M ² REVELMENT
WEIGHT	480.000 TON
DURATION	2018-2022
CLIENT	RIJKSWATERSTAAT

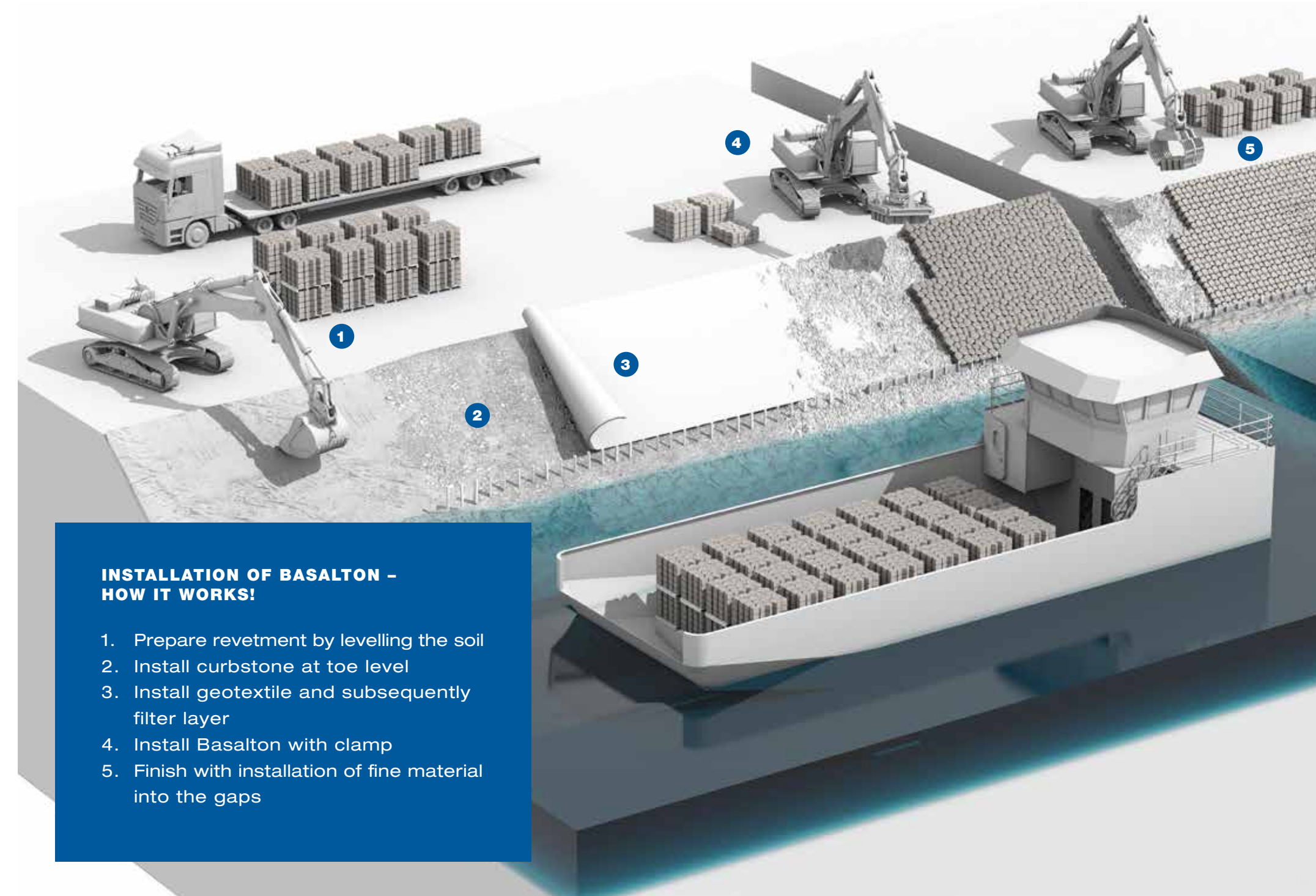
DESIGN & INSTALLATION

Due to extensive testing of block revetments in large scale wave flumes, stability parameters and formulae are available for the design of block revetments with Basalton. The design formulae can be found in guidelines, like the CUR Rock Manual (2007). In the Netherlands a calculation program for the design of revetments is developed by Deltares, called Steentoets. The stability parameters for different armour layers, including Basalton, have been incorporated in Steentoets.

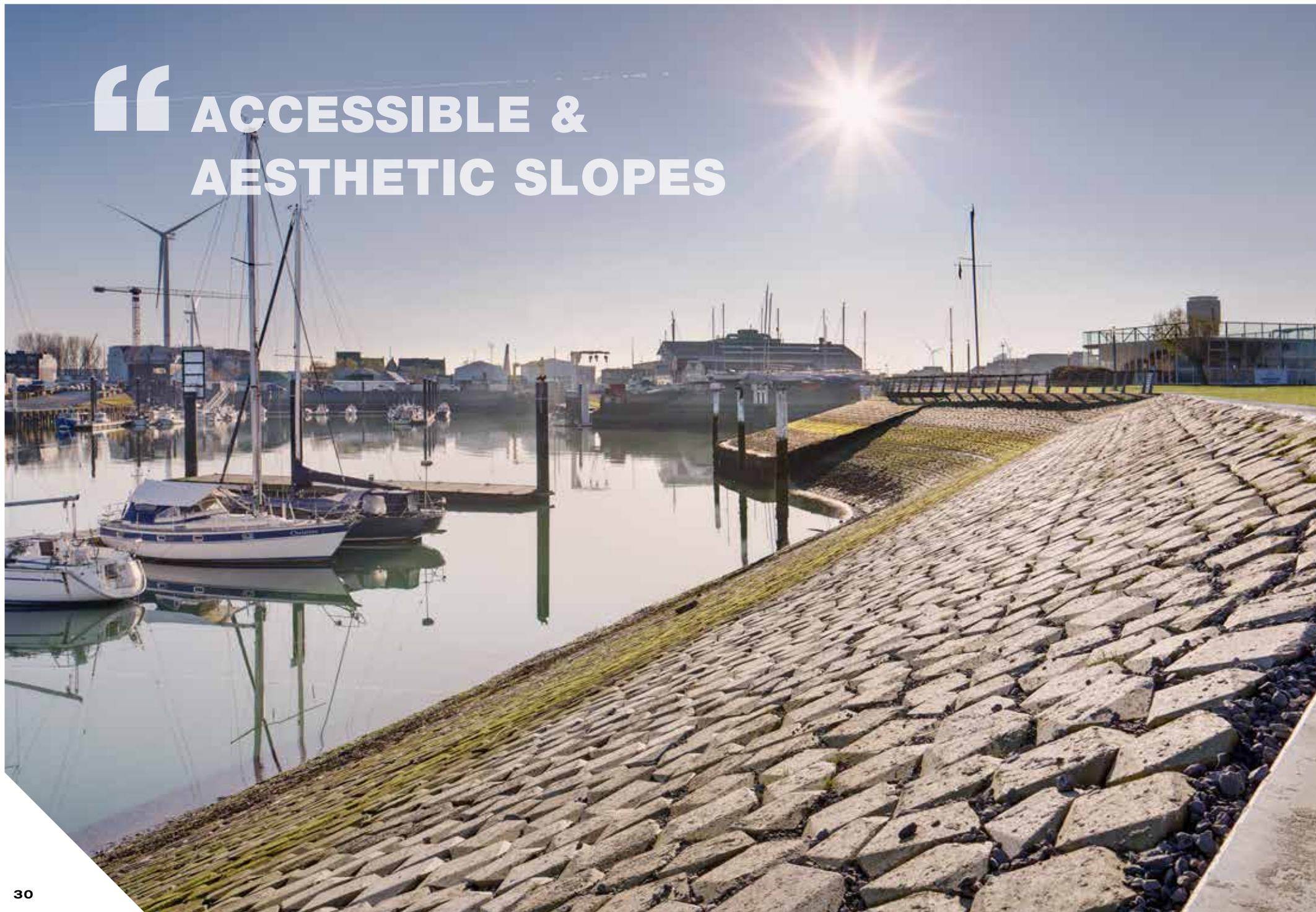
The most important design conditions are wave height and period, water levels, currents and geotechnical conditions. Furthermore, requirements like maximum allowable wave overtopping and slope angle are important for the design. Please consult our team in the Netherlands for all your enquiries regarding design with Basalton.

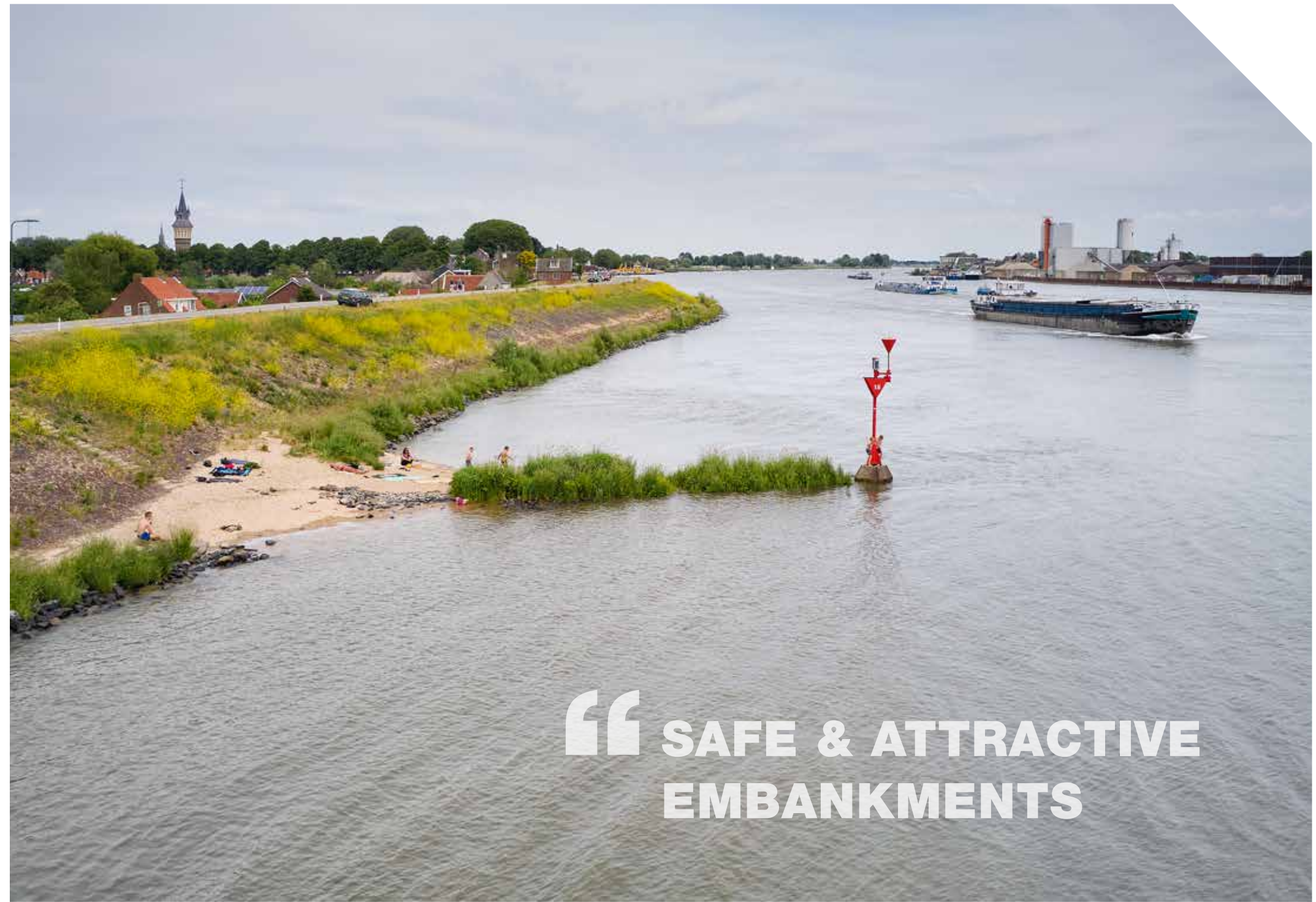
ADVANTAGES OF BASALTON

- Proven technology
- Basalton Quattroblock is the most stable block revetment in coastal protection
- Appearance of Basalton Standard is most similar to basalt columns
- Delivered ready to install on-site via truck or ship
- Basalton Standard on pallets, Basalton Quattroblock without
- Easy, fast and secure installation
- Reduced costs by high productivity rate
- Changes in the dike body are visible on the revetment surface
- Concrete creates no toxic substances
- Reduces CO² emissions, ecologically sustainable
- Accessible for equipment to carry out inspections & maintenance

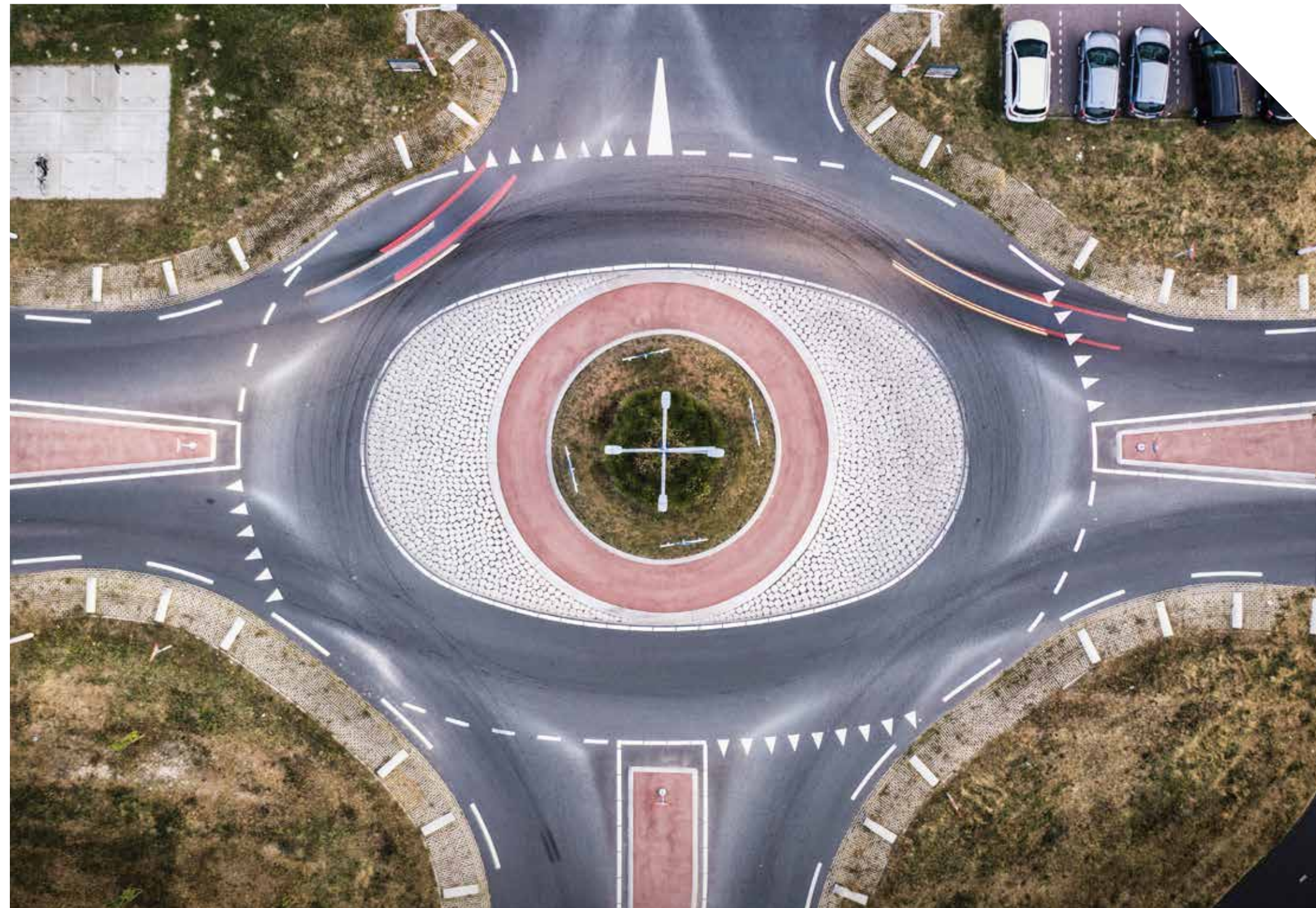


“ ACCESSIBLE & AESTHETIC SLOPES





**“ SAFE & ATTRACTIVE
EMBANKMENTS**



RANGE OF BASALTON PRODUCTS

Height (cm)	Dimensions (cm)	kg/m²	kg/set	m²/set
BASALTON® QUATTROBLOCK				
20	108.5 x 108.5 cm	405	478	1.18
25	108.5 x 108.5 cm	505	596	1.18
30	108.5 x 108.5 cm	605	714	1.18
35	108.5 x 108.5 cm	705	832	1.18
40	108.5 x 108.5 cm	805	950	1.18
45	108.5 x 108.5 cm	905	1068	1.18
50	108.5 x 108.5 cm	1005	1186	1.18
55	108.5 x 108.5 cm	1105	1304	1.18
BASALTON® STANDARD				
15	120 x 110 cm	305	397	1.3
20	120 x 110 cm	405	527	1.3
25	120 x 110 cm	505	657	1.3
30	120 x 110 cm	605	787	1.3
35	120 x 110 cm	705	917	1.3
40	120 x 110 cm	805	1047	1.3
45	120 x 110 cm	905	1177	1.3
50	120 x 110 cm	1005	1307	1.3
BASALTON® REGULARS				
15	110 x 110 cm	310	375	1.21
20	110 x 110 cm	410	496	1.21
25	110 x 110 cm	510	617	1.21
30	110 x 110 cm	610	738	1.21
35	110 x 110 cm	710	859	1.21
40	110 x 110 cm	810	980	1.21
45	110 x 110 cm	910	1101	1.21
50	110 x 110 cm	1010	1222	1.21
BASALTON® SLAB				
25	120 x 108 cm	510	663	1.3
BASALTON® INFRA				
15	120 x 110 cm	292	380	1.3

OPTIONS

Special features are available such as different colours and surface texture; gray, anthracite, red, Basalt texture and Eco texture.



ADDITIONAL SOLUTIONS

ENCLOSURES FOR BASALTON

Holcim has many product solutions for making a stable toe construction.

ROAD CONSTRUCTION

Holcim also offers road construction solutions and speed reducing measures with its product range. Basalton can be used for covering of embankments under bridge decks, roundabout coverings and rumble strips on roads.

Hydromedia* system was developed to reduce the sealing of surfaces. This porous concrete channels the surface water into the subsoil. This relieves the burden on the sewerage system and reduces the risk of inner-city flooding.

Hydromedia* can be produced in its natural colour concrete grey or in almost any colour by adding inorganic colour pigments. The building material is resistant to frost and freeze-thaw and de-icing salt and can be driven on by normal car traffic.

* Hydromedia is also sold under different names, such as Campodrain



**“ OUR BETOMAT
SOLUTIONS
BLEND IN
COMPLETELY
WITH THE
NATURAL
ENVIRONMENT**

REINFORCEMENT OF NATURAL BANKS

Holcim offers Betomat, a precast articulated concrete block mat, as a defence solution to the erosion of embankments and bottoms of waterways, due to high winds, waves or currents. Ultimately, the open Betomats can blend in completely with the natural environment. Betomats come in various sizes and weights of interlocking concrete block mats with versatile application possibilities. They can be installed both above and below water to strengthen and protect banks, while increasing the integrity and stability of the construction.

The application of the Betomat in engineering projects makes it possible for construction teams to easily install secure bank defences quickly. The Betomat can be laid underwater and extended without disturbing the upper embankment. The geotextile, which is inseparably linked to the concrete blocks, prevents the soil from washing out. Thanks to its flexibility, Betomat can even compensate for minor subsidence of the soil.

Betomat®

WHICH PRODUCT TO CHOOSE?

PRODUCTS BUILT TO LAST

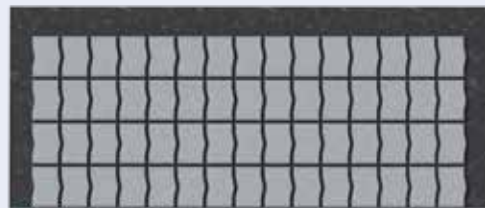
Betomat comes in various types, weights and sizes. The Betomats are supplied with an overlap on 2 or 3 sides of the geotextile so that a sufficient seal from mat to mat is obtained.



BETOMAT POROUS

The Betomat Porous is a precast articulated concrete block mat which consists of concrete blocks with an open structure and are tightly secured to a geotextile. The amount of open spaces (approx. 25%) in and between the concrete blocks means that the banks can have a complete natural look as the Betomat becomes one with the environment. To achieve a natural appearance, the tiles can be filled with soil and the slope sown with grass seed creating a grass-green yet concrete-strong result. In fact, the vegetation even contributes to the stability of the slope.

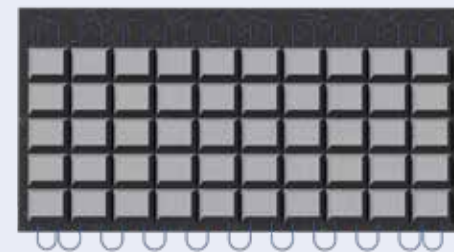
This makes this type of Betomat ideally suited for use in recreational areas and other places where a natural appearance of embankments is desired.



BETOMAT SOLID

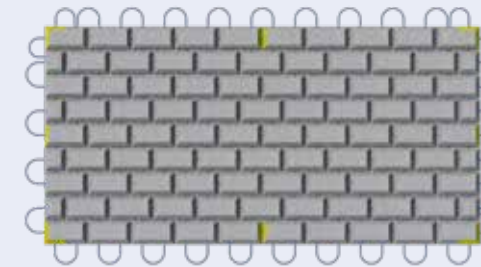
The Betomat Solid is precast articulated concrete block mat which consists of solid concrete blocks with a v-joint and are tightly secured to a geotextile. Because of less open space (about 5%) and thus a higher weight per m², these mats can be used on more heavily attacked banks or bottoms.

With the limited open space between the concrete blocks, the bank remains free of vegetation.



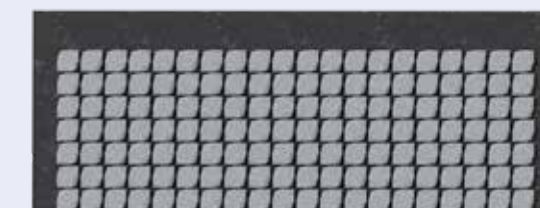
BETOMAT HEAVY DUTY

The Betomat Heavy Duty is a precast articulated concrete block mat consisting of large solid concrete blocks which are inseparably linked to a geotextile. Due to the heavy weight of the mat ropes on the sides are used for lifting and placement. This type of Betomat is mainly used for covering pipes or protecting soils adjacent to quays where higher flow velocities are expected due to the propeller wash of the shipping vessels.



BETOMAT OFFSHORE

The Betomat Offshore is a precast articulated concrete block mat developed for the offshore sector, to protect pipes and cables on the seabed near offshore wind turbines and drilling platforms. The offshore mats are made up of concrete blocks connected with ropes, and can be lifted from four sides.



BETOMAT BASALTON

The Betomat Basalton is a Betomat composed of a geotextile and 15 cm high Basalton Regulars. This particular Betomat is ideal if the mat needs to be (partially) placed above water and the slope must retain the appearance of a stone revetment. Due to the small dimensions of the Basalton elements, the mat neatly follows the shape of the substrate.

The Betomat Basalton can also be used in combination with separate Basalton column sets.

PROJECT LOCKS JUNNE

INVISIBLE REINFORCEMENT OF NATURAL BANKS

The river Vecht between Ommen and the German border has several weirs, but must be made entirely navigable for smaller leisure craft, such as shallow draft vessels and canoes. In 2019, two special locks were completed within the side channel, built for small inland navigation. Betomats were installed at the entrance channel of the locks. In this side channel, the Betomats keep the embankment in position, even at high flow velocities. After the installation, the banks were sown with grass and the Betomats were fully integrated into the natural landscape.

Betomat®



“INVISIBLE REINFORCEMENT
OF NATURAL BANKS”



FACTS

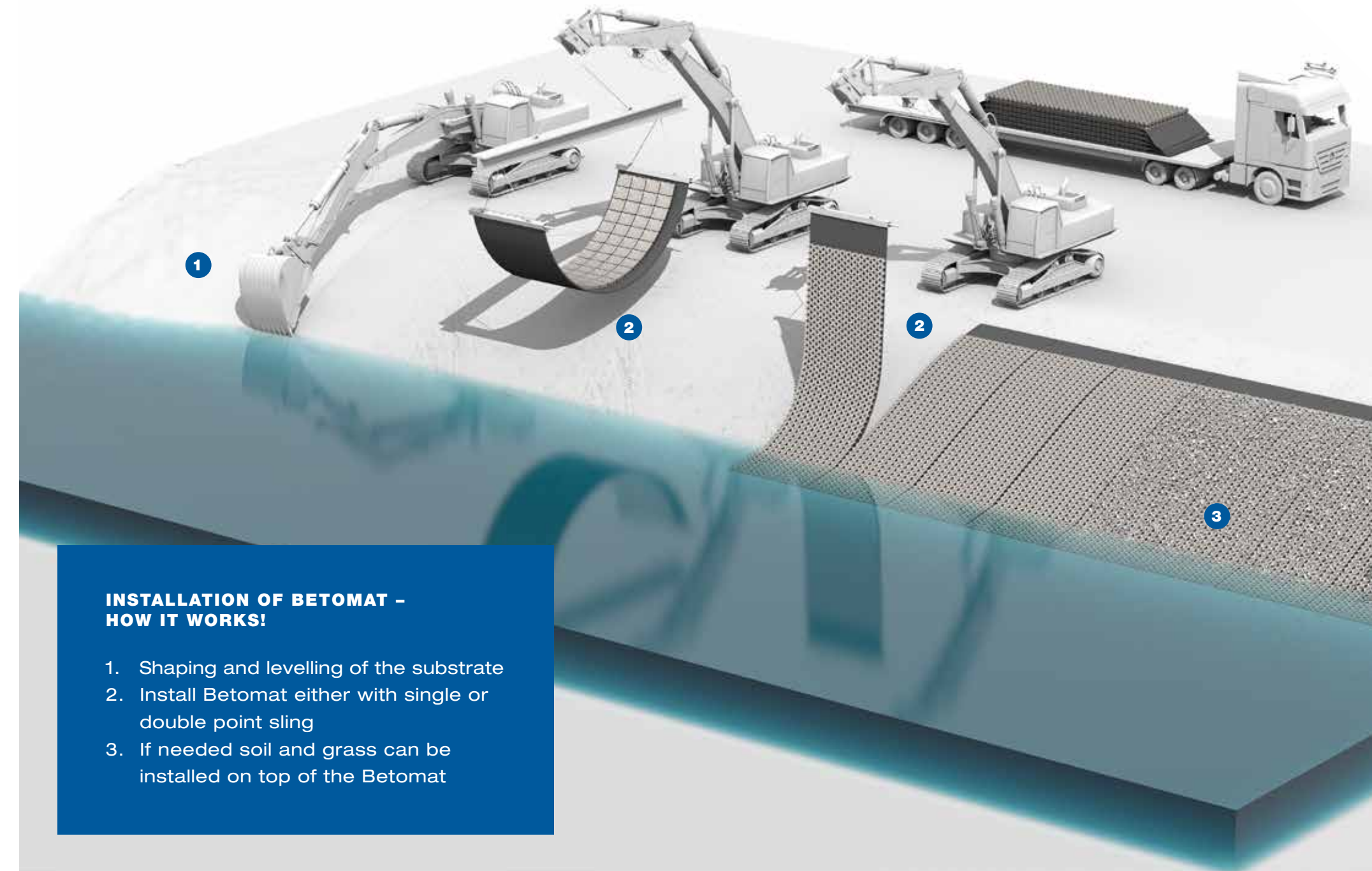
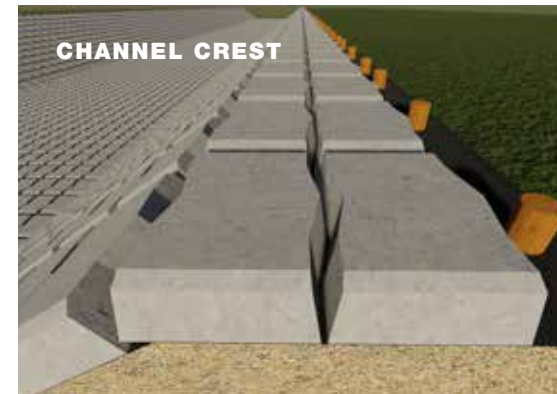
PROJECT	LOCKS JUNNE AND MARIENBERG THE NETHERLANDS
TYPE	BETOMAT POROUS 9CM
QUANTITY	7.500M ²
PROJECT FINISHED	2019
CLIENT	WATERBOARD VECHTSTROMEN

DESIGN & INSTALLATION

The most important design conditions are wave height and period, water levels and current velocity and direction. Please consult our team in the Netherlands for all your enquiries regarding design with Basalton.

ADVANTAGES OF BETOMAT

- Many m² to be placed at once
- Durable rivers protection
- Permanent revetment solution
- Delivered ready to install
- Easy to install and time saving
- Concrete elements are seamlessly connected to the geotextile, making it possible to lay both above and below water in one easy action
- Betomats are easy to adjust and work around obstacles
- Certified laying material is made available
- Open and closed types available
- Various types and sizes available with different weights per m²
- Available in various colours/coatings



INSTALLATION OF BETOMAT - HOW IT WORKS!

1. Shaping and levelling of the substrate
2. Install Betomat either with single or double point sling
3. If needed soil and grass can be installed on top of the Betomat

**“ FLEXIBLE SCOUR
PROTECTION**





RANGE OF BETOMAT PRODUCTS

Tile thickness [cm]	Tile length [cm]	Tile width [cm]	Weight [kg/m²]	Open surface [%]
BETOMAT® POROUS				
7	44	33	approx. 115	25
9	44	33	approx. 150	25
11	44	33	approx. 180	25
BETOMAT® SOLID				
9	30	40	approx. 180	5
10	25	40	approx. 215	5
15	40	60	approx. 310	5
BETOMAT® HEAVY DUTY				
17	60	50	approx. 300	9
23	60	50	approx. 400	9
30	60	50	approx. 500	9
BETOMAT® BASALTON				
15	30	29	approx. 300	9
BETOMAT® OFFSHORE				
30	59	33	approx. 475	5



**BETOWALL GIVES A PROTECTIVE
AND DECORATIVE FINISH**

THE FACE OF OUR COMMUNITIES

Betowall utilizes the products from Holcim to create façade elements for the protection and decoration of quays and building walls in cities and towns. Betowall gives a protective and decorative finish along quays refreshing any canal, marina or river wall. The Basalton precast wall, gives the characteristic Basalton 'look', and is ideal for use as a promenade wall along rivers.

TYPICAL BETOWALL APPLICATIONS

- Buildings
- Gardens
- Quays
- Waterfront
- Marinas
- Slope protection
- Facades
- Acoustic screens

BetowallTM

WHICH PRODUCT TO CHOOSE?

Betowall products are delivered ready to use and easy to install on-site.



BETOWALL BASALTON

The Basalton wall is applied vertically creating a stable construction with the appearance of a brick basalt wall or ordinary bricks. The wall elements must be placed vertically on a H-shaped steel beam



BETOWALL NATURAL STONE

For historical settings, it can be essential to use (original) natural stone materials. Also these elements can be precast by our experts.



BETOWALL CONCRETE PRINT

Create the look you like, from traditional to ultra-modern. We are able to tailor your needs!



BETOWALL LUCEM

Let your concrete work for you. Enlighten your concrete. LUCEM Wall elements with LINE, STARLIGHT and PURE panels are able to create an unique ambiance.



BETOWALL BIO ACTIVE

Green cities are more livable by improving water retention as well as acoustic insulation. But it also makes it possible to fight against urban heat islands, to develop biodiversity, to filter out hydrocarbon dust. A full turnkey precast concept, including the structural wall with pervious toplayer & vegetation can be offered by Holcim.

PROJECT BROUWERSHAVEN

A NEW QUAY WITH A HISTORICAL APPEARANCE

Brouwershaven is characterised by its unique historical surroundings. In the middle of the centre lies the old harbour. The new quay will therefore be one with a historic appearance. By installing Basalton wall elements in front of the steel sheet pile walls, the new wall will soon fit in completely with the historical surroundings.

Betowall™



“THE NEW WALL WILL FIT IN
COMPLETELY WITH THE
HISTORICAL SURROUNDINGS



FACTS

PROJECT	BROUWERSHAVEN THE NETHERLANDS
PROJECT FINISHED	2020
LENGTH PROJECT	450 M
TYPE	BASALTON BETOWALL
CLIENT	FL LIEBREGTS

DESIGN & INSTALLATION

Betowall gives a protective and decorative finish along quays refreshing any canal, marina or river wall. For the design of the Betowall elements there are some important parameters needed. These include the following:

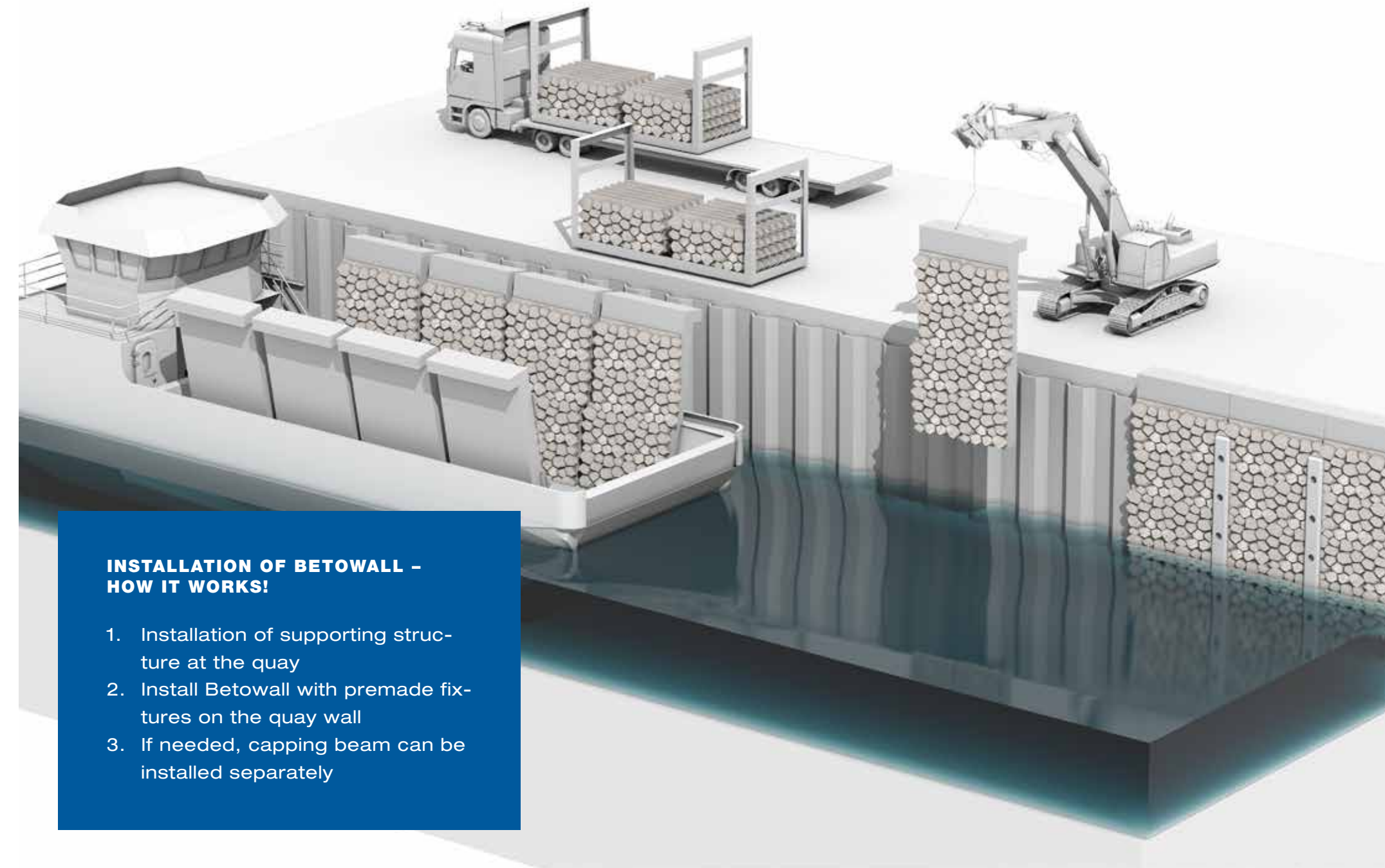
- Water levels, waves and currents
- Ice loads
- Ship loads

The design of the structure on which the Betowall is applied, has incorporated all the relevant loads. Therefore, to act as a protective element it should be able to withstand the forces applied directly to the face of the element.

The Betowall elements are attached to the supporting structure which is usually a quay. The quay usually consists of a steel sheet pile and a concrete capping beam. The Betowall is attached either directly to the steel sheet pile or to the capping beam. Installation is made easy with premade fixtures.

ADVANTAGES OF BETOWALL

- Fully prefabricated
- Applicable vertically and on slopes
- Aesthetically pleasing
- Fast and stable application
- Modular construction at construction site
- Available in different types, textures and applications
- Vandal-proof



INSTALLATION OF BETOWALL – HOW IT WORKS!

1. Installation of supporting structure at the quay
2. Install Betowall with premade fixtures on the quay wall
3. If needed, capping beam can be installed separately

“ WATERFRONT ILLUMINATION



LUCEM
LICHTBETON



ADDITIONAL SOLUTIONS

Marinas, ranging from small to large, include facilities and services for vessels of all sizes, their owners, guests and crew, but they can also offer numerous opportunities for residents and tourists.

Marinas are increasingly being developed as part of comprehensive waterfront plans that offer opportunities for recreation, tourism, urban improvements and social improvements. Marinas include a wide range of facilities, from a simple mooring place for a few boats and limited services to large projects of waterfront development and rehabilitation.

Marinas provide infrastructure and services for the recreational boats and ships. Some of the marina elements are: boat ramps, quay infrastructure, stairs. We are at your disposal to provide solutions with either our standard range of products or tailor made products.

ABOUT US

Holcim is at the frontline of the construction industry with a strong focus on the Infrastructure sector, producing and supplying an array of construction materials ranging from precast concrete elements and armour stone. By building the foundations of tomorrow, together we can respond to the infrastructure challenges of the next 100 years.

Our mission is to provide safety and resilience on the border between land and water, and to be recognised as the leading supplier of sustainable and high-quality concrete and stone solutions for coasts and waterways.

We are your trusted partner for your coastal, port and waterways projects and start working with you on your projects at the design stage to understand your key needs and help you find the best construction solutions. Our infrastructure experts – operating at global, regional and country levels – are ready to support you.



“ A RELIABLE GLOBAL PARTNER FOR COASTAL INFRASTRUCTURE PROJECTS

PLANT ALPHEN AAN DEN RIJN, THE NETHERLANDS

To ensure timely and seamless execution we invested in the expansion of our Dutch concrete products plant in Alphen aan den Rijn. The expanded plant will be able to produce sufficient tonnes of concrete Quattroblocks a day for customers in the Netherlands, Belgium, Germany and the UK.



SERVICES

You can rely on our specialists. We have teams exclusively dedicated to hydraulic engineering, including R&D specialists, with extensive knowledge in design and construction methods for shore protection, quay walls, pavements, deep soil mixing, and breakwaters. Our Innovation Center, the biggest in the construction materials industry with more than 200 engineers and researchers, develops, simulates, and tests various marine solutions based on your specific construction methods.

You can trust our knowledge of local materials. With a truly global presence across five continents, Holcim can source the most appropriate materials solutions for your project, including precast concrete elements and quarried rock for shore protection.

You can team up with a partner providing environmentally friendly solutions. As part of our 2030 Plan, we are committed to developing sustainable construction solutions, including products that create a favorable environment for marine life.



QUALITY

We adhere to the highest national and international quality standards and continuous quality control. Moreover, all manufactured concrete products in The Netherlands meet the environmental requirements of the Building Materials Decree according to BRL 5070. In addition, we supply many products with a KOMO certificate, issued by KIWA, an independent Dutch inspection institute. It is also checked whether the raw materials used and the production process itself meet the very strict KIWA regulations. We strive to deliver our products, from raw materials to the delivery of the end product with the lowest possible CO² impact on the environment.

SUSTAINABILITY

Our climate neutral concrete EcoPact Zero uses an optimized composition with regard to CO² emissions like no other product on the market as of now. And to reduce the CO² emissions to zero, the unavoidable emissions are offset through certified climate protection projects. But more than that, using EcoPact Zero doesn't only help reduce CO² emissions, but also helps acquire relevant scoring points with BREEAM and LEED certification.



ABOUT HOLCIM GROUP

Holcim Group is the global leader in building materials and solutions. We are active in four business segments: cement, aggregates, ready-mix concrete and solutions & products.

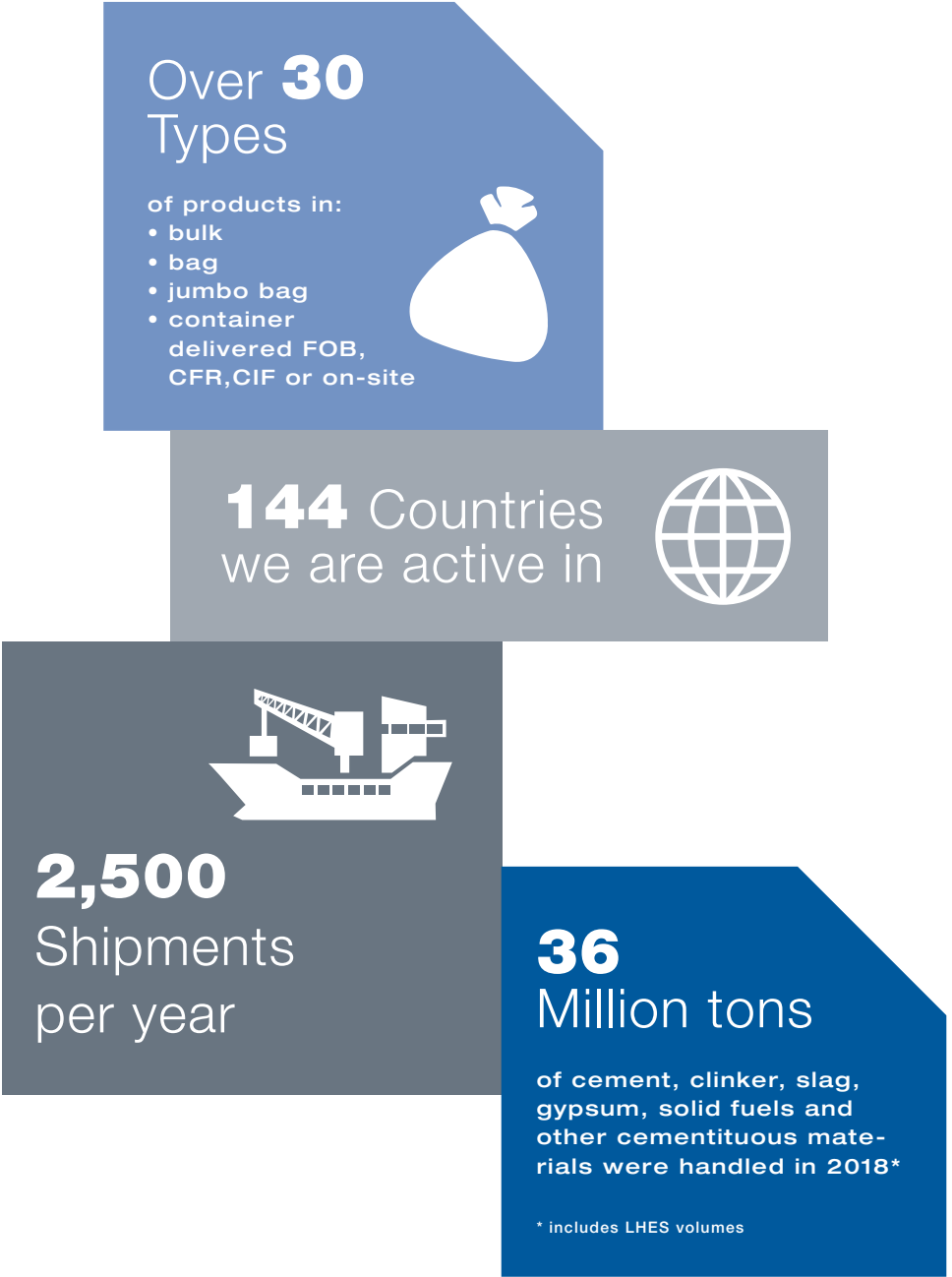
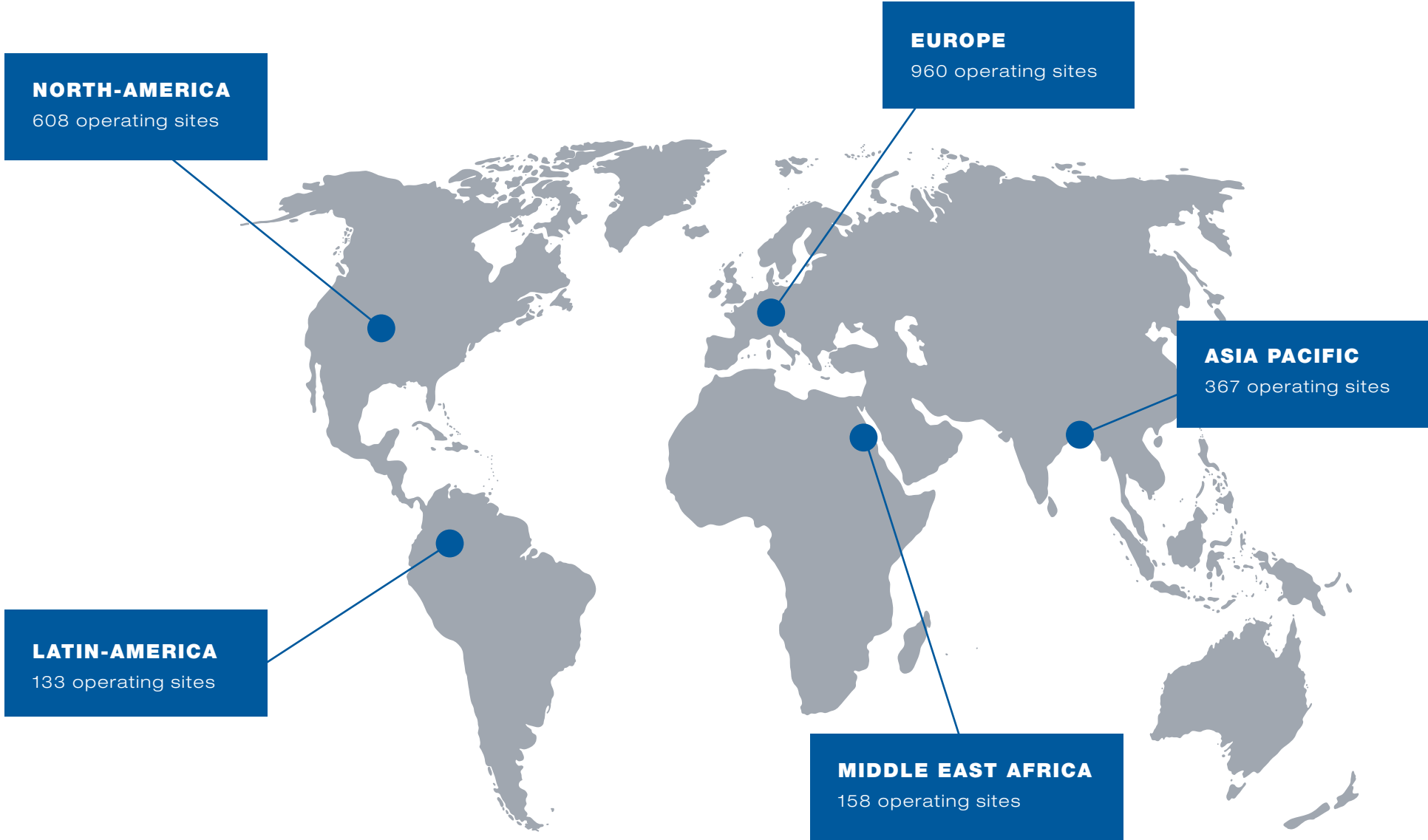
With leading positions in all regions of the world and a balanced portfolio between developing and mature markets, Holcim offers a broad range of high-quality building materials and solutions.

Holcim experts solve the challenges that customers face around the world, whether they are building individual homes or major infrastructure projects. Demand for Holcim materials and solutions is driven by global population growth, urbanization, improved living standards and sustainable construction. 75,000 people work for the company in around 80 countries.

Additional information is available on the website at **www.holcim.com**



OVERVIEW HOLCIM GROUP



HOLCIM TRADING

The Holcim Group has a renowned trading department and Holcim Trading is the leader in seaborne trading of cementitious products.

We provide solutions for the import and export needs of cementitious materials, gypsum, solid fuels and other dry bulk goods and support our customers with adequate services to develop their market.

Our chartering and shipping teams manage a diverse network of seaborne logistics operating bulk carrier vessels and specialized self-discharging pneumatic cement carriers.

From our trading offices in Zurich, Singapore and Miami we offer around the clock support to our suppliers and customers around the world.



www.holcimcoastal.com