



Installation instructions

HYDROGRAVEL and HYDROGRAVEL PRO geogrids

**GEOGRID SYSTEM WITH SOIL INFILL
FOR GRASS SEEDING**

CONTENTS

GENERAL INFORMATION	2
LAYING PROCESS	3
SUB-BASE	6
GEOGRID INFILL	7
CONDITIONS FOR SAFE USE OF THE SURFACE	8

GENERAL INFORMATION

The HYDROGRAVEL geogrid is designed for the construction of pavements offering high levels of performance and strength. The product features a robust, compact structure formed by straight, thick vertical cell walls, which provide rigidity and stability in service. The geogrid is manufactured from a PP/PE polymer blend, providing durability and resistance to demanding service conditions. It has a simple cellular design, with suitably thickened internal and external cell walls. This design ensures highly effective load transfer and a high load-bearing capacity across the system as a whole. HYDROGRAVEL is manufactured in large-format modules, enabling faster and more efficient installation over large areas. Once the modules have been laid, the resulting pavement offers excellent load-bearing capacity and stability.

HYDROGRAVEL geogrids may be infilled with paving blocks, construction aggregate, decorative aggregate or fertile soil intended for grass seeding. The product is intended for demanding applications subject to high traffic intensity and heavy use. It is used primarily on roads, in car parks and at infrastructure and industrial sites where high-strength solutions are required. The HYDROGRAVEL geogrid system effectively stabilises road and car park surfaces while maintaining their permeability. The resulting pavement forms a biologically active surface, enabling rainwater retention and vegetation growth.

LAYING PROCESS

CONNECTING THE GEOGRIDS

HYDROGRAVEL geogrids must be connected using the integrated interlocking system located on the external walls of each module. The system comprises specially shaped interlocking lugs and slots, allowing successive geogrids to be correctly aligned and joined to form a continuous pavement system.

Install each successive module by sliding it into engagement with the module already laid, then press it firmly into place to achieve the closest possible fit.

Once correctly connected, the individual modules interlock to form a continuous, stable and durable surface.

- The geogrids are connected using the interlocking lugs and slots located on the external walls of the modules.
- Slide each successive geogrid into engagement with the geogrid already laid and press it firmly into place.
- Once correctly connected, the individual modules interlock to form a uniform surface.
- During installation, bring the modules as close together as possible to minimise the gaps between them.
- Where the pavement terminates at an edge, the external connector slots may be cut off.
- The geogrids should be infilled immediately after laying to minimise the effects of thermal expansion.

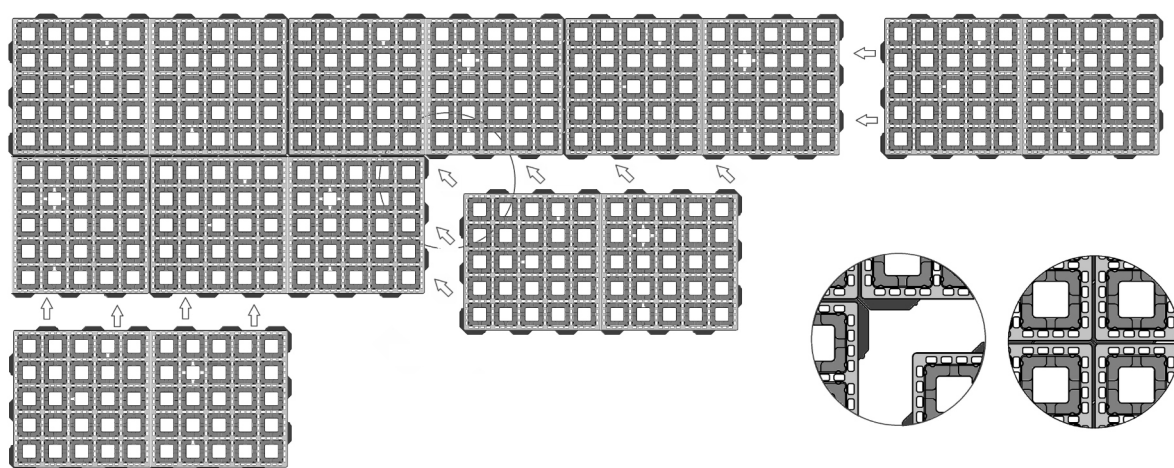


Figure 1 Connecting the geogrids

LAYING THE GEOGRIDS

The geogrids may be laid in any direction, depending on the chosen installation layout. They may be installed either lengthways or widthways across the pavement. Vehicular traffic may travel either parallel or perpendicular to the longer sides of the geogrids without affecting system performance.

During installation, allowance must be made for minor dimensional variations between individual modules. Such variations are characteristic of plastic products and arise from the properties of the material used.

To achieve the closest possible fit, it is recommended that modules from different pallet layers be mixed by alternating slightly larger and slightly smaller modules. This approach reduces the risk of dimensional variations accumulating and helps achieve a more uniform pavement layout.

- The geogrids must only be laid when the ambient temperature is above +10 °C.
- The geogrids may be laid in any direction.
- Vehicular traffic may travel either parallel or perpendicular to the longer sides of the geogrids.
- Natural dimensional variations between modules must be allowed for during installation.
- It is recommended that geogrids from different pallet layers be mixed by alternating larger and smaller modules.
- Minor departures from flatness in the geogrids, resulting from the manufacturing process or storage conditions, are permissible. They do not affect correct installation or the appearance of the finished pavement, as they are no longer visible once installed.
- The completed geogrid pavement should be flush with adjacent surfaces. Edge restraints, such as kerbs, edging units or other adjoining pavement finishes, must be set flush with the top surface of the geogrids.

*The geogrids must be laid in a stretcher bond pattern.
Each joint between geogrids should align with the centre of the geogrid in the preceding row.*

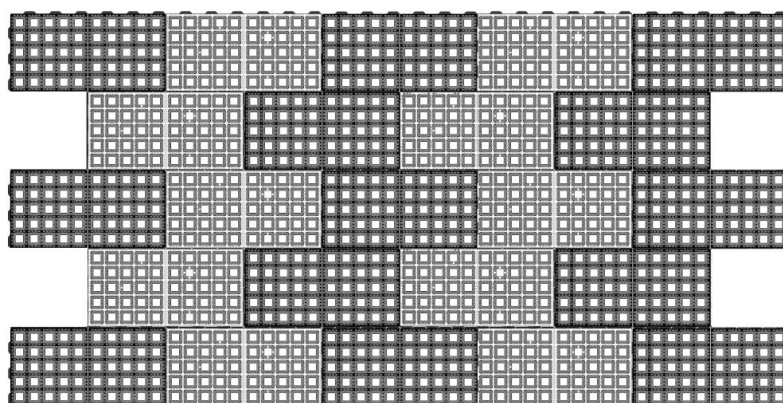


Figure 2 Laying the geogrids in a stretcher bond pattern

EXPANSION GAPS

During laying, installation gaps may occur between the walls of adjacent geogrids. This is permissible and does not constitute a product defect. These gaps result from the natural properties of plastics, which may temporarily contract or expand in response to changes in temperature. The resulting gaps also act as expansion gaps, allowing the pavement to accommodate movement under varying service and climatic conditions. For this reason, once the pavement has been laid, the edges of the geogrids may not always form a perfectly straight line. Where modules have to be cut to fit around manholes, walls or other fixed infrastructure, an expansion gap at least 3 cm wide must be maintained. This clearance allows the pavement to accommodate movement and compensates for dimensional changes caused by thermal expansion.

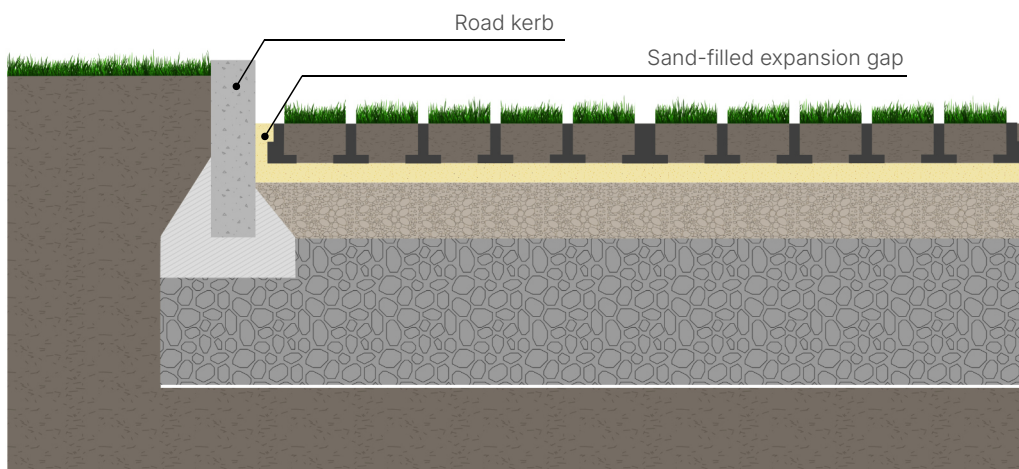


Figure 3 Expansion gap at a kerb

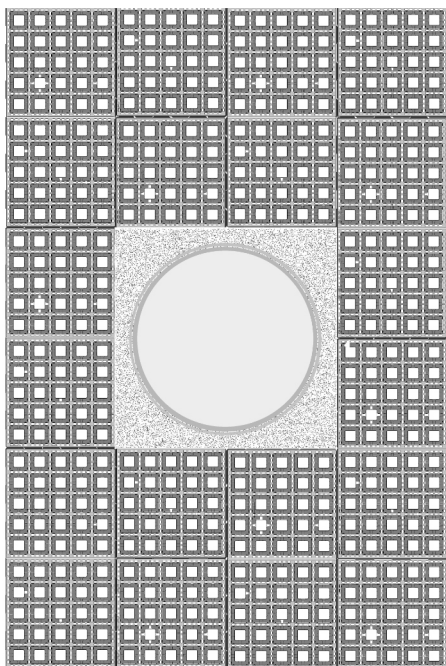


Figure 4 Suggested installation detail around a manhole

- Minor installation gaps may occur between modules.
- Installation gaps act as expansion gaps.
- An expansion gap of at least 3 cm must be maintained at kerbs, edging units and other pavement boundaries.
- Expansion gaps must be filled with sand.
- Because the polymer expands and contracts with changes in temperature, a clearance should be maintained between the pavement and fixed elements.
- Road and car park pavements should be restrained by kerbs. For larger paved areas, kerbs are also recommended to prevent the pavement from shifting and to ensure stability.

SUB-BASE

The sub-base beneath the geogrid pavement should be constructed so as to ensure the durability, stability and safe use of the pavement system as a whole. Its design must be tailored in each case to the intended use of the pavement, the anticipated loads and the ground and groundwater conditions at the installation site. A correctly constructed sub-base should provide uniform support for the geogrids, reduce the risk of rutting, settlement and pavement movement, and allow effective drainage or infiltration of water.

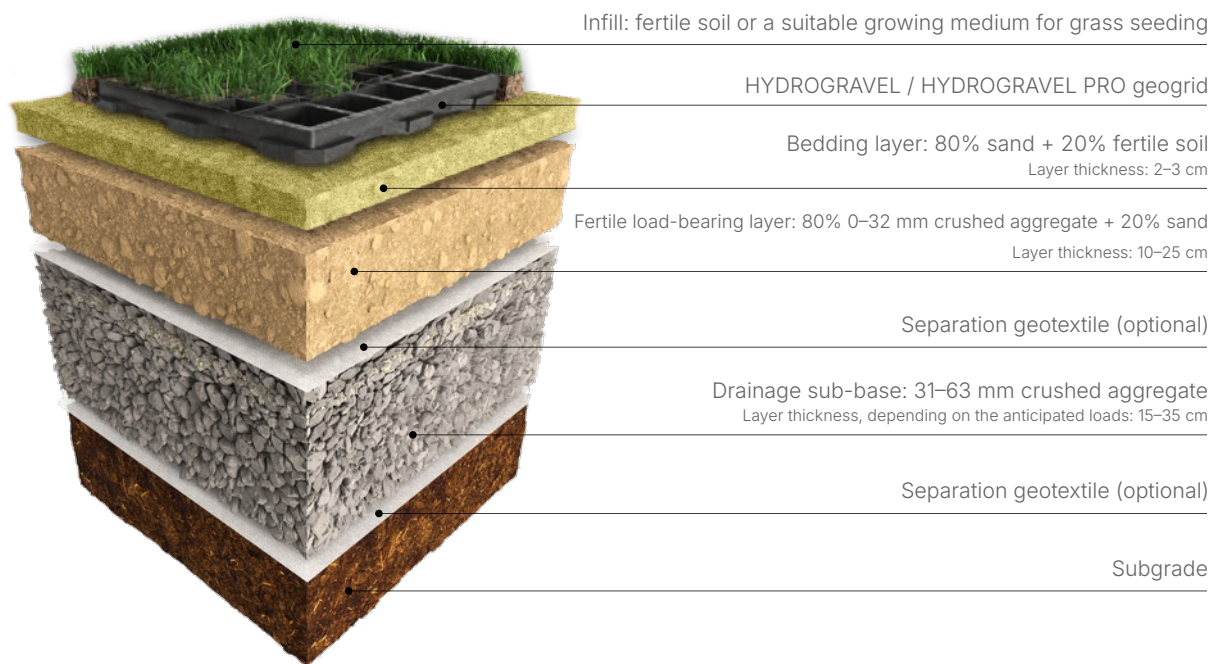


Figure 5 Suggested sub-base build-up

- The sub-base must be designed for each application to suit the pavement type, anticipated loads, traffic intensity and the ground and groundwater conditions at the site.
- The subgrade should be properly prepared, shaped to the required profile and compacted before the subsequent pavement layers are placed.
- The subgrade beneath the pavement should be free from standing water. Where the subgrade has low permeability, appropriate drainage measures must be provided.
- The sub-base should provide uniform, stable support over the entire pavement area.
- The sub-base layers must be constructed using materials suitable for the selected design and placed and compacted in successive layers.
- The sub-base should minimise the risk of rutting, settlement, deformation and pavement movement in service.

- Where the subgrade has low bearing capacity, is silty, clayey or waterlogged, or is susceptible to the washout of fines, a separation layer, such as a geotextile, must be provided.
- The sub-base should ensure effective water management within the pavement construction, particularly by allowing water to drain away or infiltrate and by minimising its accumulation within the sub-base layers.
- The thickness of each sub-base layer must be determined in accordance with the design, taking into account the intended function of the pavement and the anticipated in-service loads.

GEOGRID INFILL

To ensure healthy grass growth and the durability of the geogrid pavement, the infill material must be selected and distributed appropriately, after which the surface must be seeded in accordance with accepted lawn-establishment practice. The infill should provide suitable growing conditions for the grass while completely filling the geogrid cells, with no voids remaining. After seeding, adequate moisture must be maintained in the growing medium, and the pavement must be kept out of use until the grass is fully established.

- Immediately after laying, the geogrid clusters must be filled with fertile soil or a suitable growing medium for grass seeding.
- The infill material should be spread evenly over the entire area so that all cells are completely filled.
- A free-draining growing medium with properties suitable for lawn establishment must be used.
- The fill level should allow for natural settlement of the soil after watering and during use.
- Once the geogrids have been filled, the surface must be evenly seeded with a grass seed mixture suitable for the intended use of the pavement.
- After seeding, water the surface and keep the growing medium moist until the grass seed has germinated successfully.
- The pavement should not be used until the grass is fully established.
- During use, any loss of soil must be replenished promptly, and areas where the grass has thinned must be overseeded.

CONDITIONS FOR SAFE USE OF THE SURFACE

To ensure the required performance, durability and safe use, a grassed geogrid pavement should be constructed in accordance with a design that takes account of the intended use of the pavement, the anticipated loads, and the ground and groundwater conditions at the site. The thickness and specification of the sub-base and bedding layer must be selected to suit the pavement type, intended use and design loads. Where the subgrade has low permeability or soil conditions are unfavourable, additional stabilisation layers or drainage must be provided.

For grassed pavements, particular attention must be paid to the correct construction of the infill layer, the selection of a suitable grass seed mixture and appropriate maintenance, both during root establishment and throughout subsequent use. Before the pavement is brought into use, the soil should be properly compacted and the grass root system sufficiently developed.

The following requirements must be observed during use:

- Do not allow any geogrid cells to remain unfilled or inadequately filled.
- The geogrid walls must remain protected by sufficient infill at all times, as exposed walls may be mechanically damaged.
- Missing or partial infill may cause mechanical damage to the pavement components and impair serviceability.
- Any loss of infill material, localised settlement or mechanical damage to the pavement must be rectified and the infill replenished promptly.
- The pavement must not be used for purposes other than those for which it was designed or subjected to loads exceeding the values specified in the design documentation.
- Do not allow the grassed pavement to dry out, particularly during the initial root-establishment period or during use in hot weather.
- Water the grassed pavement according to the prevailing weather conditions and avoid watering in direct sunlight.
- Grassed areas must not be subjected to excessive use.
- Before the grassed pavement is brought into use, ensure that the soil has been properly stabilised and that the grass root system has developed sufficiently.
- The selected grass seed mixture should be suitable for the anticipated conditions of use and consist of varieties that grow slowly, tolerate temperature extremes, have modest soil requirements and develop a strong, deep root system, thereby providing high resistance to adverse soil conditions and periodic water deficits.

Periodic inspection of the pavement is recommended, including, in particular, an assessment of the level of infill in the cells, surface evenness, the condition of the edge restraints and any localised damage. Prompt rectification of any defects identified is important for maintaining the durability and safe use of the pavement.



ul. Nowy Dwór 4, 43-410 Zebrzydowice

+48 32 411 06 55 | natan@natanplast.pl

www.natanplast.pl