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September 27, 2005

RECEIVED
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Secretary
Zoning Commission for the District of Columbia
Office of Zoning – Suite 210
441 4th Street, NW
Washington, D C 20001

Re Case No 04-34 (Use of Pervious Parking and Driveway Surfaces)

Dear Secretary



ACF Environmental, Inc is a full-service regional provider of environmental products of several manufacturers which are suitable for many applications – including geosynthetic erosion control and soil stabilization ACF provides several pervious paving products

ACF has been in business for over twenty years ACF serves needs in the District of Columbia and surrounding States ACF is committed to helping customers select management practices that are best for each of their projects and categories of project

ACF welcomes the proposal to "eliminate the prohibition for use of pervious surfaces for all parking spaces and for driveways that access required parking spaces" However, the limited examples of porous or pervious concrete, porous asphalt, Grasscrete or a generic definition of Grasscrete as "allowable all weather surfaces" are too narrow – based on ACF's experience – because they omit competing products that sometimes could better serve District of Columbia projects

For example, Grasscrete is a proprietary system of cells made of concrete poured on-site, hardened, filled with earth, and planted with grass (Concrete cell walls are supposed to support the earth, but they may become quite hot in the sun) ACF provides Grasscrete along with other concrete cellular systems

The alternative systems – cellular or non-cellular – can be superior for particular parking or driveway applications

ZONING COMMISSION
District of Columbia
CASE NO.04-34
EXHIBIT NO.34

ACF Environmental†

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ACF provides cellular systems (a) made of plastic materials and (b) manufactured off site to give mechanical support to grassed earth The White House used such system, Geoblock, on East Executive Drive (We understand that the federal agencies that manage the White House are not subject to D C Zoning prohibitions, but recommend that other land managers also be allowed the same flexibility as the White House) We have also provided Geoblock for residential Applications in D C One example is 2332-2338 Massachusetts Avenue, N W

ACF also provides the Geoweb cellular confinement system, manufactured by Presto (an ALCOA subsidiary) which can contain and stabilize crushed stone, concrete, or gravel by means of a flexible, diamond-shaped grid Such mechanically-supported materials could be used in some parking applications, such as a heavy load-supporting pad for a public utility vehicle or parking for other heavy vehicles

Also, ACF has trade marked and provides GrassTrac, a product that mechanically supports grass turf from below by means of a wire grid, which Bekaert Corporation of Atlanta, Georgia, manufactures for ACF GrassTrac has provided environmental and aesthetic benefits for numerous parking projects

I enclose with this letter illustrative information about several such products

ACF recommends, therefore, that the Zoning Commission amend its proposed final rule to include mechanically-support grass and gravel as allowable all-weather surfaces

Sincerely,

Jeff Fox
ACF Environmental

Enclosure [s]

Geoblock®

Vegetated Porous Pavement System

The Presto **Geoblock**® *Porous Pavement System* is a result of innovation designed to provide the right solution for a wide range of turf and load support applications.

The **Geoblock** system is a series of interlocking, high-strength blocks made from recycled plastic materials. The system is designed to handle the most demanding turf protection and load support requirements while allowing for vigorous growth of turf grass. And the larger size, .50 m x 1.00 m x 50 mm (20 x 40 x 2 inch nominal), is easier to handle and install.

The **Geoblock** system is an ideal paving solution in traffic areas where the natural beauty of sustainable vegetation and permeability of topsoil are desired.





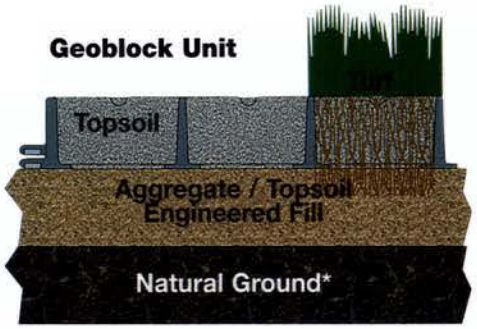
Presto®

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The Geoblock® System Components

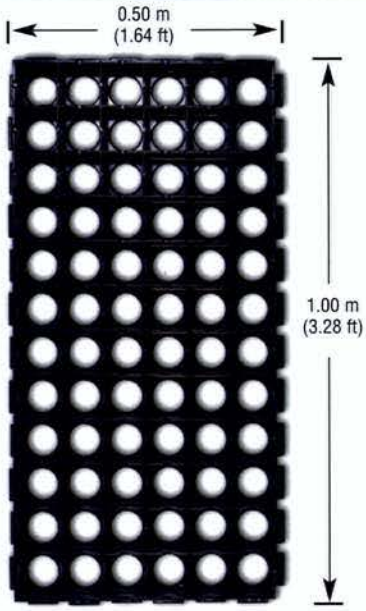
The Geoblock® Porous Pavement System provides vehicular and pedestrian load support over grass areas while protecting the grass from the harmful effects of traffic. The system is comprised of four major components: (1) The Geoblock unit (2) the base support soil (3) the selected topsoil infill and (4) the selected vegetation.

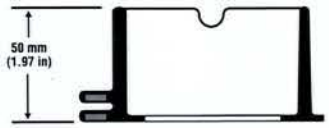
Both the Geoblock unit and the support soil work together to support the imposed loading, while the Geoblock unit and the topsoil contribute to the vegetative support.



Geoblock Material Specification

** Refer to Geoblock Use Guideline.*





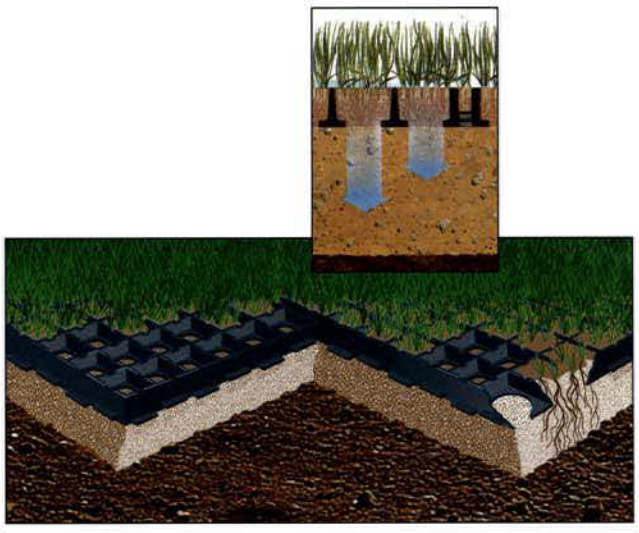
Geoblock Cell and Interlocking Offset Tab

Item	*GBM-5150*
Material	Up to 100% Recycled Polyethylene
Color	Dark shades of gray to black
Chemical Resistance	Superior
Carbon Black for Ultraviolet Light Stabilization	1.5% - 2.0%
Unit Minimum Crush Strength @ 21°C (70°F)	2,900 kPa (420 psi)
Material Flexural Modulus at 23°C (73°F)	240,000 kPa (35,000 psi)
Dimensions (width x length)	0.50 m x 1.00 m (1.64 ft x 3.28 ft)
Unit Depth	50 mm (1.97 in)
Coverage Area	0.50 m^2 (5.38 ft^2)
Cells per Unit	72
Cell Size	79 mm x 81 mm (3.1 in x 3.2 in)
Top Open Area per Unit	87%
Bottom Open Area per Unit	40%
Interlocking Offset Shear Transfer Tabs	1 tab for each peripheral cell
Nominal Weight per Unit	4.49 kg (9.9 lb)
Runoff Coefficient @ 63.5 mm/hr (2.5 in) Rainfall	1.5%
Units per Pallet	50

NOTE: Dimensions and weight are subject to manufacturing tolerances and are influenced by recycled component characteristics. characteristics.

The Geoblock System Advantage

- Fully Engineered System - designed to provide long term success; successful installations since early 1980s.
- Permeable Design - 87% open surface; allows rain to percolate into the ground rather than contribute to storm water runoff.
- Interlocking Unit Design - maximizes load distribution capability.
- Protects the crown of the grass; reduces rutting, prevents soil compaction when properly installed.
- Reduces the amount of site preparation and subgrade improvement.
- Easily Installed - ordinary tools used to cut units; no special fasteners or connection devices.

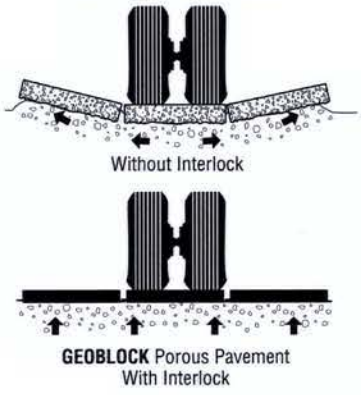


A System with Integrity

The Geoblock system supports heavy or concentrated loads by creating a flexible structural bridge within the topsoil layer that maximizes load transfer from block to block. The system flexes under loads that would break concrete.

Featuring a four-sided tabular, interlocking block design, the system provides superior load-bearing performance and layout design and construction flexibility. The recommended staggered placement (bricklayer's pattern) of the individual Geoblock units further increases the system's load distribution capabilities and maximizes the number of adjacent units used to effectively spread concentrated wheel loads over the largest possible area.

Effect of Interlock
Soil Stress Distribution



Without Interlock

GEOBLOCK Porous Pavement
With Interlock

Geoblock® System Usage Guideline

Description	Load Description: Maximum Tire Pressure	Load Description: Single Axle Loading	Load Description: Tandem Axle Loading	Load Description: Gross Vehicle Loading	Depth of Engineered Base: CBR 2 - 4	Depth of Engineered Base: CBR > 4
Heavy Fire Truck Access & H-20 loading. Infrequent passes	Typical 620 kPa (90 psi)	145 kN (32 kip)	220 kN (48 kip)	36.3 tonne (80,000 lb)	150 mm (6 in)	100 mm (4 in)
Light Fire Truck Access & H-15 loading. Infrequent passes	Typical 586 kPa (85 psi)	110 kN (24 kip)		27.2 tonne (60,000 lb)	100 mm (4 in)	50 mm (2 in)
Utility & Delivery Truck Access & H-10 loading. Infrequent passes	Typical 414 kPa (60 psi)	75 kN (16 kip)		18.1 tonne (40,000 lb)	50 mm (2 in)	50 mm (2 in)
Car & Pick-up Truck Access. Infrequent passes	Typical 310 kPa (45 psi)	18 kN (4 kip)		3.6 tonne (8,000 lb)	None	None
Trail Use [1]. Loading for pedestrian, wheelchair, equestrian, bicycle, motorcycle & ATV traffic.	Low	Low		Low	None	None

1. If trail is non-vegetated, refer to the Geoblock® design and construction document for more details.

NOTE: CBR refers to California Bearing Ratio. As the CBR increases, the depth of the engineered base will decrease.

RECOMMENDED TOPSOIL:
Suitable topsoil should be a good quality, drainable soil and not be compacted within the Geoblock unit. The topsoil should be pulverized prior to filling the Geoblock cells and contain sufficient organic content to support vegetative growth. Topsoil such as sandy loam is recommended. Clay and clay loam materials are considered unacceptable.

RECOMMENDED ENGINEERED BASE:
Support soil shall consist of a mixture of coarse sand, clear-stone or crushed rock blended with topsoil (per Recommended Topsoil). This mixture will promote vegetative growth and provide required structural support. The aggregate portion should be free from fines and have a known percentage void-space when compacted. Pulverized topsoil, equal to the void percentage in the aggregate, should be added and blended prior to placement. If the topsoil is not present within the engineered base, grass growth may be significantly impaired.

Engineered Solutions

The Geoblock system provides an effective solution for a wide variety of turf and load support applications. From fire access lanes to hiking trails, parking areas to golf cart paths, the Geoblock system improves both the usefulness and aesthetics of an outdoor environment. Successful installations of the Geoblock porous pavement system are found worldwide.

- Emergency and utility access lanes
- Auxiliary parking areas
- Pedestrian walkways, trails and wheelchair access ways
- Approaches to monuments, statues and fountains
- Golf cart path shoulders and aprons
- Driveways, driveway shoulders and medians



Easy Installation

The Geoblock system is designed for easy installation, requiring less site preparation, less subgrade improvement, less excavation and less granular backfill than other porous pavement systems.

The Geoblock system is easily installed around obstructions and contours, and can be cut with ordinary hand or power tools. No forklifts, cranes or concrete saws are required.

The tabular, interlocking design saves installation time and money by eliminating the need for special tools, staples, cleats and rings. Plus, the system's larger, easy-to-handle size minimizes the quantity of blocks required on a given job, reducing installation costs and labor.





Assistance

Presto Geosystems and its authorized distributors offer assistance in determining the ideal system for your specific application. In addition, the following information is available for use by design professionals and contractors:

- ***Case Histories*** - Project-specific case studies with design, construction and performance information.
- ***Design Tools*** - Loading, base and infill recommendations, material and CSI-format specifications, basic engineering concepts for general application, and AutoCad® drawings.
- ***Construction Tools*** - Illustrated, step-by-step set of installation guidelines, time/cost worksheet to calculate installed costs and installation performance specification.

For more information, call the Presto Assistance Line at (800) 548-3424 or (920) 738-1118.



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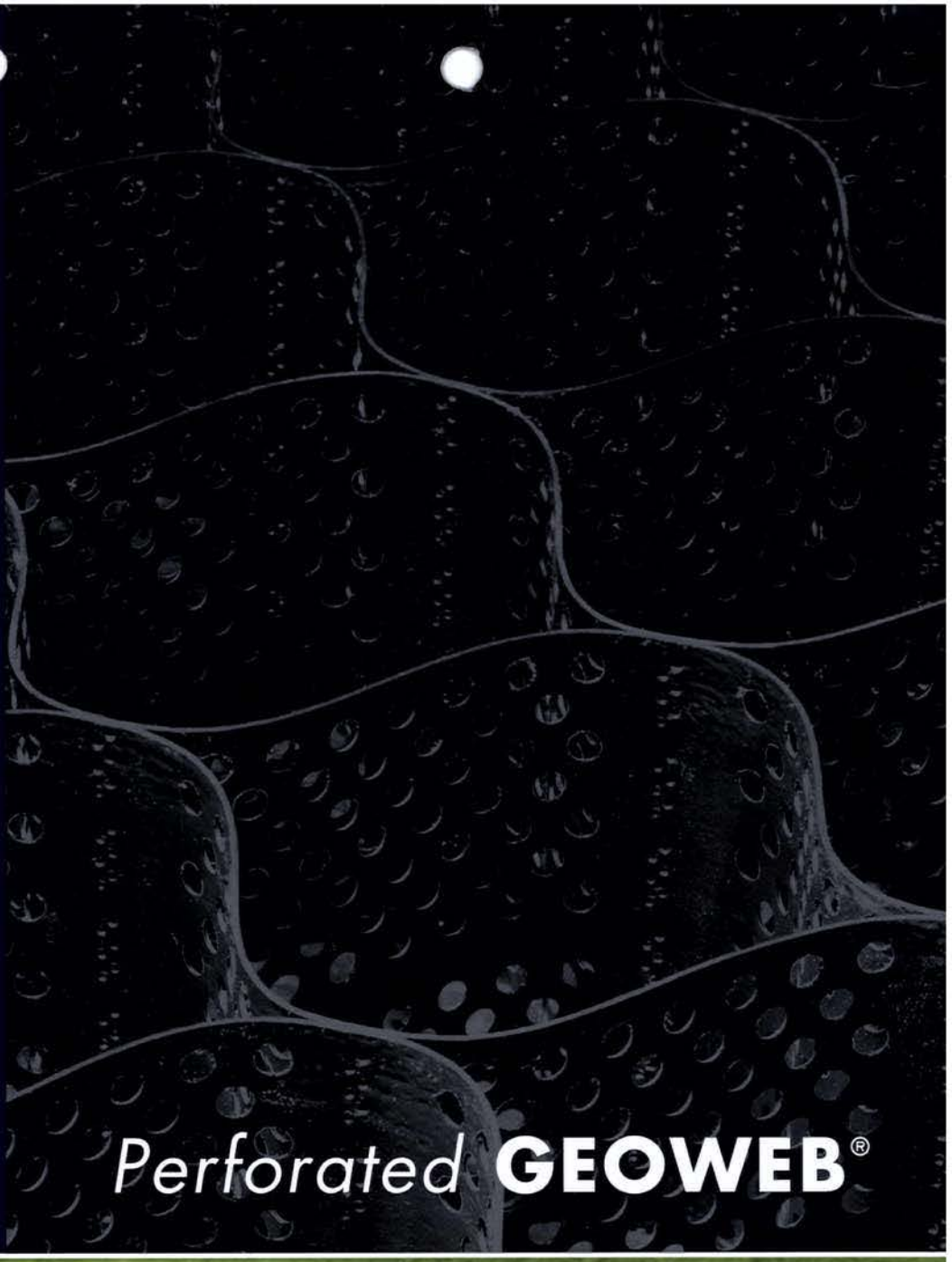
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Perforated GEOWEB®

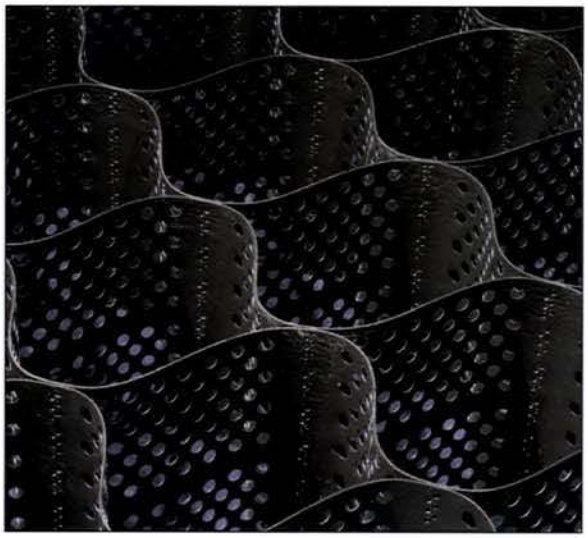
Presto® ALCOA

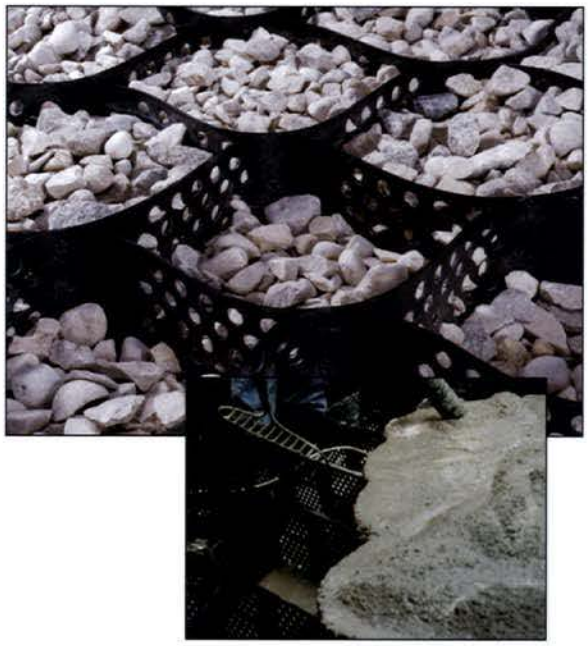
CELLULAR CONFINEMENT SYSTEM





For the most advanced soil stabilization technology today, nothing is more reliable than Presto's Perforated Geoweb® Cellular Confinement System.







Presto's *Perforated* Geoweb System Leading with Advanced Geotechnology

Developed through knowledge, insight and experience. Proven through extensive research and testing. Presto's ***Perforated* Geoweb® cellular confinement system** is a result of innovation designed to provide superior overall system performance. Presto's products and technology lead the industry with reliable, cost-effective soil stabilization solutions.

The ***Perforated* Geoweb system** is an engineered, multi-component system that includes:

- the *Perforated* Geoweb section
- the specific infill material
- other critical components that add value to the solution

The ***Perforated* Geoweb system** contains holes specific in size, quantity and spacing. The hole design creates increased frictional interlock with aggregates and concrete, increased root lock-up with vegetated systems and better lateral drainage.*

ISO Certified Quality

Presto's quality management system is certified to ISO 9001-2000 and all phases of manufacturing are monitored through statistical process control. Manufactured from polyethylene, *perforated* Geoweb sections meet certified quality standards before shipping to the job site. Each Geoweb section is specifically engineered in accordance with established geosynthetic industry guidelines and is backed by warranty for materials and workmanship.

Advantages of Perforations

Developed with the end user in mind, the system increases performance in Slope and Channel Protection, Earth Retention and Load Support applications.

- **Improved lateral drainage through cell walls results in better performance in saturated soils** - 16% cell wall open area allows lateral drainage of excessive ground and surface water.
- **Greater cell wall/infill lock-up with coarse materials such as aggregate and concrete** - increases frictional interlock up to 30%.
- **Increased root lock-up in vegetated systems** - as roots grow from cell-to-cell creating a more stable vegetated mass.
- **Healthy soil environment** - allows the passage of water, nutrients and soil-organisms from cell-to-cell, and thus system wide.
- **Reduced installation and long-term maintenance costs** - results from reduced material weight and greater infill lock-up.

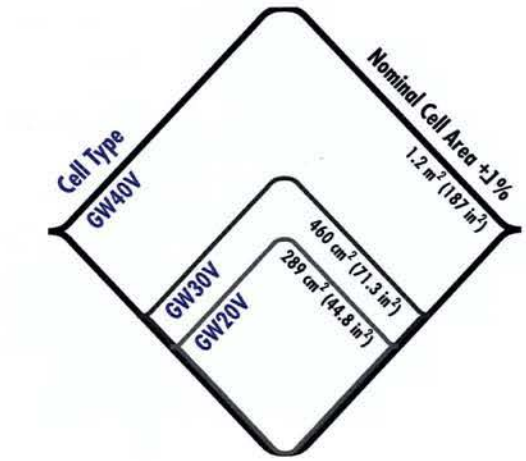
Perforated System Standard Sizes

Perforated Geoweb® sections are available in various lengths and cell types and depths.

Section Dimension	Section Width	Section Length Range Cells Long: 18, 21, 25, 29, 34	
	Variable	Minimum	Maximum
GW20V	2.3 m (7.7 ft) to 2.8 m (9.2 ft)	3.7 m (12.0 ft)	8.3 m (27.3 ft)
GW30V		4.7 m (15.4 ft)	10.7 m (35.1 ft)
GW40V		7.7 m (25.4 ft)	17.8 m (58.2 ft)

The available *Perforated* Geoweb nominal cell depths are 75 mm (3 in), 100 mm (4 in), 150 mm (6 in) and 200 mm (8 in).

Cell size and depth is determined by the details of the application, problem and solution. For greater product detail, refer to Presto's Geoweb® material specification.



Easy Installation

Sections collapse into lightweight, compact bundles for ease in shipping. During installation at the job site, the *Perforated* Geoweb sections are lighter and easier to handle than solid wall systems.



Other System Components

Other components used with the *Perforated* Geoweb section are often times critical to the successful outcome of the solution. Many projects include the application of polymeric tendons and/or Presto's ATRA® Clips in the design to ensure optimum system performance.*



Polymeric Tendons

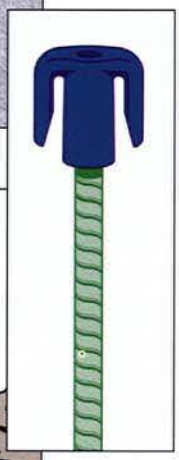
Integral, high strength polymeric tendons, incorporated into the perforated system through pre-drilled holes, are used to anchor Geoweb sections. The tendoned Geoweb system provides additional stability against gravitational and hydrodynamic forces, especially in channel and slope applications.

Tendons are recommended for general anchoring with stakes or when a geomembrane underlayer or naturally hard soil/rock prevents anchoring with stakes. Tendons are available in tensile strengths from 3.1 kN (700 lbf) to 13.3 kN (3000 lbf). A full range of tendons are available, satisfying most types of environmental and site conditions.



*Patents pending and issued on Presto's perforated Geoweb system, ATRA® clip and other system components.





Presto's ATRA® Clip

Developed to improve performance and installation, Presto's injection molded, high-strength polyethylene ATRA® Clip provides time and material cost savings during Geoweb® system installation.

Offering as much as 25% material cost savings, the ATRA® Clip provides performance benefits when used with the Geoweb system in the following ways...

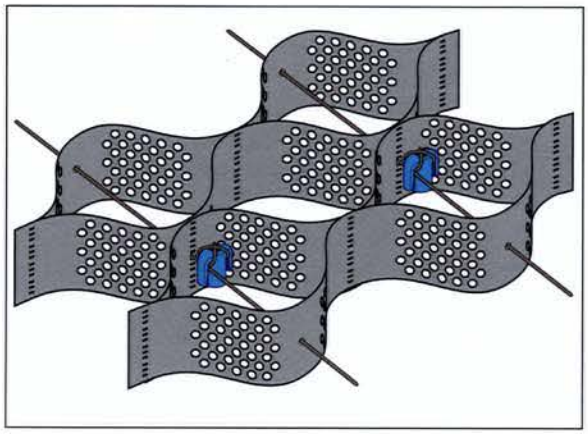
The ATRA® Anchor System

The ATRA® Clip inserted on the end of a rebar stake forms the ATRA® Anchor, providing an in-line, easier to drive anchoring system. The arm of the ATRA® Clip attaches either over the wall of the Geoweb cell or over the tendon, providing resistance to excessive sliding and/or uplift forces.

- Eliminates the task and cost of forming rebar J-pins.
- Provides an in-line, easier to drive anchor pin to assure superior anchoring.

When used with tendons, ATRA® Anchors can also provide toe or crest anchoring for slope and channel protection systems.

The ATRA® Anchor can also attach two Geoweb sections together. The ATRA® Anchor is driven inside a side-seam cell between two Geoweb sections so each arm of the clip passes over a different cell wall on the two sections being joined. Using the ATRA® Anchor to connect Geoweb sections together does not replace the need to staple when conditions require a more secure attachment method.



The ATRA® Clip Restraint Pin

The ATRA® Clip restraint pin is used to tie off tendons at specific load-transfer points in slope and channel applications. It replaces the need for dowels or other less secure tie-off mechanisms.

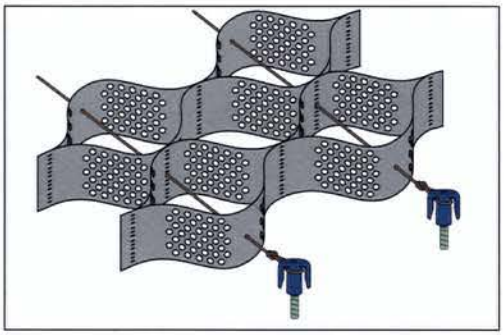
Perforated Slope & Channel Protection System

Perforated cell walls increase system stability on slopes and channels.



The *Perforated* Geoweb® slope and channel protection system confines, reinforces and restrains the vegetated topsoil or stone infill controlling downslope movement due to hydrodynamic and gravitational forces.

When cells are infilled with concrete, the system becomes a flexible concrete mat with built-in expansion joints. Single or multi-layer protection systems meet a wide range of structural and hydraulic requirements.



Tendons are incorporated to create additional stability on steeper slopes and channels or when a geomembrane or hard soil/rock surface prevents anchoring with stakes. ATRA® Anchors with tendons provide toe or crest anchoring in slope and channel protection applications.

- The perforated system facilitates parallel slope drainage of the infilled cell. In saturated conditions, an overall weight reduction of the infill material reduces down slope sliding potential, resulting in a more stable system.
- Greater frictional resistance between infill materials and the perforated cell wall provides greater resistance to upward displacement caused by freeze/ thaw cycles and hydraulic scour of aggregate infill.
- In vegetated systems, roots can grow from cell-to-cell creating greater vegetative mass lockup and stability against short-term hydraulic events.
- Perforations create a more natural habitat for plants and animals by allowing cell-to-cell movement of earthworms and nutrients.
- The perforations allow concrete infill to flow through the cells, increasing frictional resistance between the concrete and the cell walls which results in a superior armored slope or channel protection system.
- Ideal for embankments, slopes, shoreline revetments, containment dikes and levees, landfill linings and covers, dam faces and spillways, and abutment protection.







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GW/GO - Apr 2004

Solving **Load Support** Problems

Geoweb® Cellular Confinement System





Partnering Ideas into Solutions®

Load Support





An Engineered Framework for Load Support

The Presto Geoweb® Cellular Confinement System

Product innovation has always been the key to success for Presto since the company's first involvement in developing cellular confinement technology back in the late '70s. Working in cooperation with the U.S. Army Corps of Engineers, Presto developed the Geoweb® cellular confinement system.

The Geoweb system is an engineered, expandable, polyethylene, honeycomb-like cellular structure that dramatically improves the performance of infill materials. The system is utilized in the areas of slope protection, channel protection, load support and earth retention.

Today, the Presto Geoweb system is the only fully-engineered cellular confinement system available, and Presto Geosystems® materials lead the way in advanced research, testing, field evaluation and geocell product innovations. Successful installations of the Geoweb system can be found worldwide, and the network of Presto Geosystems distributors spans the globe.

ISO-Certified Quality

Extensive research and testing by academic and independent laboratories, ISO 9001:2000 certification, and over twenty years of in-ground performance tell the story: The Geoweb system provides proven quality and reliability.

Presto's commitment to quality begins with manufacturing and continues through final installation. Our quality management system is certified to ISO 9001:2000 and materials are specifically engineered in accordance with established geosynthetic industry guidelines. All phases of manufacturing are monitored through Statistical Process Control which documents each step in the production process. Geoweb sections are warranted by Presto against manufacturing defects. Copies of Presto's warranty is available from Presto or an authorized Presto Geosystems distributor.

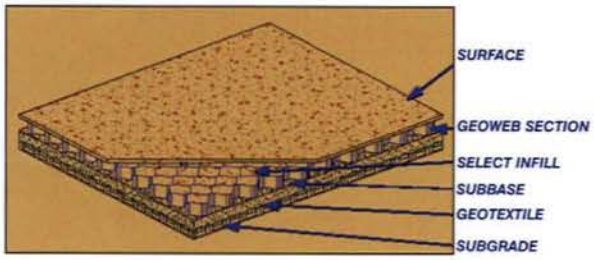
Advanced Product Development

Engineering advancements are on-going at Presto Geosystems and lead to improved cellular confinement systems. Geoweb system advancements include the introduction of both perforated and non-perforated textured Geoweb cells, the use of integral, high-strength tendons and the ATRA® Anchoring System. The Geoweb system is also available in a variety of colors for better blending with the surrounding project site environment.

The Geoweb system's unique seam weld pattern is designed to provide maximum strength. The Geoweb system meets and exceeds the rigorous seam strength tests established by the U.S. Army Corps of Engineers. The Geoweb system's long-term seam strength is designed for project longevity.

Presto ALCOA

Geoweb® Load Support System- The Key Components



The complete Geoweb® cellular confinement system application will include some or all of the following:

- Geoweb sections
- Cell infill materials
- Integral high-strength polymeric tendons
- ATRA® Anchors
- ATRA® Clips
- Geotextiles
- Geocomposite drainage materials
- Geogrids and geotextile reinforcement
- Geomembrane
- Fasteners



Integral Polymeric Tendons

Geoweb sections can be supplied with a series of predrilled holes through the cell walls to accommodate insertion of polymeric tendons throughout the section length. The strength and distribution of tendons are determined from project-specific stability analysis.

Standard tendons are high-strength polyester and polypropylene, available in various ultimate tensile strengths to meet specific requirements. Polyethylene-coated polyester tendons are available to enhance overall durability. Spacing and quantity of individual tendons within each Geoweb section are determined through engineering analysis methods available through Presto.



The ATRA® Anchoring System

Presto's high-strength polyethylene ATRA® Clip provides time and material cost savings during Geoweb system installation. The ATRA® Clip inserted on the end of a rebar stake forms the ATRA® Anchor, providing an in-line, easier to drive anchoring system.

In load support applications, anchors are typically used to facilitate construction. When specific conditions dictate, the Geoweb load support system can also be secured with an engineered array of surface anchors designed to meet site requirements. Anchor details are determined through analysis methods available from Presto or its authorized distributors.



Flexible Concrete Mat

Geoweb sections can be filled with concrete off-site, cured and transported to remote areas not easily accessible to conventional concrete-placing equipment. The flexible mats are advantageous in light load applications for boat ramps and expedient armoring systems. Concrete infill with the perforated Geoweb system offers even greater rigidity than the non-perforated system.

Presto ALCOA

Versatile Cell Wall Options

The Presto Geoweb® Cellular Confinement System is available in two distinct cell wall types: perforated and non-perforated. Both have an engineered textured pattern of indentations that increase friction between the cell wall and infill material.

The perforated Geoweb cell wall provides increased frictional interlock with coarse aggregates and concrete and better root lock-up with vegetated systems. The perforations allow lateral drainage through the system, thereby enhancing performance of the Geoweb system in saturated conditions. The textured surface works particularly well with finer grain infill.



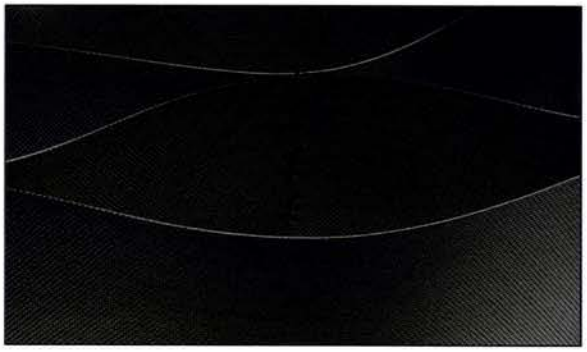
Size Options

Geoweb® cellular confinement sections are available in various lengths, cell depths and cell sizes addressing the specific needs of the design. Load support system details are directly influenced by the characteristics of the:

- subsoil support
- applied load
- available granular infill materials
- surface type

Generally, the heavier the applied load and/or the poorer the subsoils, the greater the required cell depth.

Contact Presto or it's authorized distributors for recommendations on product application and details.















Load Support Solutions

Unacceptable road and yard surface problems, resulting from subgrade material failure or base material instability, can be solved using the Geoweb® cellular confinement system. The Geoweb system helps to stabilize base materials and minimize surface rutting. After installation, it is ready for immediate access. The system provides a semi-rigid surface for yards and track structures while it can improve your bottom line by reducing fill thickness, time delays and future maintenance costs. The choice is clear: a Geoweb system can mean cost savings today and cost savings tomorrow.

How does it work? The Geoweb cellular confinement system strengthens structural fill used in load support applications by adding an apparent cohesion to cohesionless material. When concentrated or distributed loads are imposed on the system, the three-dimensional cellular structure controls shearing and lateral movement of the infill material. The cell hoop strength, passive resistance of adjacent-filled cells, and frictional interaction between the infill and cell walls all contribute to the support structure.

Look at the advantages of using the Geoweb system for road base, trackbed and intermodal yard stabilization. The system can...

- produce a stiff base with high flexural strength,
- act like a semi-rigid slab by distributing loads laterally and reducing subgrade contact pressures,
- prevent the lateral displacement of infill,
- reduce vertical deflections, and
- control differential and total settlement even on low-strength subgrades.

Research on confined vs. unconfined aggregate has shown that the thickness and weight of structural support elements may be reduced 50 percent or more.

In addition, research shows that when aggregate is confined within the cellular confinement system, the subgrade materials may withstand more than 10 times the number of cyclic-load applications before accumulating the same amount of permanent deflection recorded by the same aggregate in a conventional unconfined condition.

The Geoweb system also allows the use of on-site sands and poor quality granular fills in place of more costly imported materials. This is particularly important in areas where quality aggregate is either unavailable or too costly to transport.

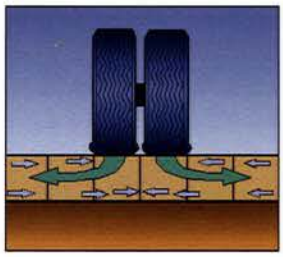
For underground pipe support, the Geoweb system is easy to install and eliminates the need for over-excavation and placement of excessive quantities of stone. Regular granular bedding material can be used since the system stiffens the pipe bed material through confinement. This results in a firm working slab created with the Geoweb system, limiting long-term differential settlement.

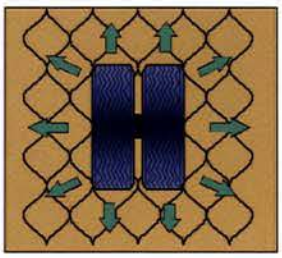
Applications of the Geoweb load support system include:

- Granular access roads
- Soft access roads
- Porous pavements
- Pavement sub-bases and bases
- Parking lots
- Storage yards
- Intermodal facilities
- Boat ramps
- Retaining wall spread footings
- Trails and walkways
- Trench inverts
- Low level water crossings
- Track ballast structures
- Foundation mattresses

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Road Base Stabilization





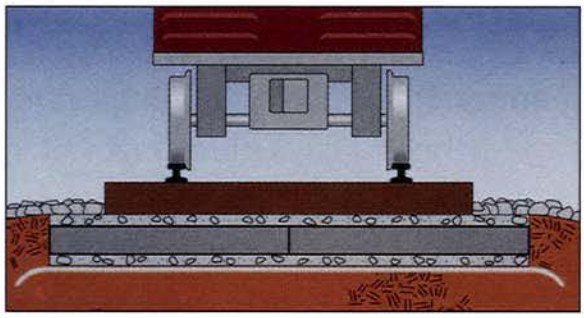
The Geoweb® system is designed to create a road base that holds up under heavy traffic. It acts like a semi-rigid slab, distributing loads laterally, reducing subgrade contact pressures, and minimizing load deformation and settlement. With the Geoweb system in place, it is possible to use lower quality sand infills for temporary and permanent road construction, even over very soft subgrades.

Selection of infill materials for foundation and road base stabilization is a function of the nature and magnitude of anticipated loads and overall performance requirements. Typically, a wide range of granular materials can be used as infill.



Intermodal Yards

Cellular confinement with the Geoweb system improves load distribution characteristics on paved and unpaved yards. Subgrade contact pressure from dynamic and static loadings are distributed throughout the three-dimensional cellular network of the Geoweb system. This reduces pavement deflection and rutting. Future maintenance costs are minimized, making the Geoweb system a cost-effective solution.



Track Ballast

The Geoweb system prevents lateral displacement of ballast and sub-ballast materials, resulting in improved track structure stiffness for greater rail alignment and stability. Differential and total settlement of the ballast, even on low-strength subgrades, is significantly reduced. Long-term track performance in high-traffic areas such as grade crossings, switches and turnouts, can be greatly improved.



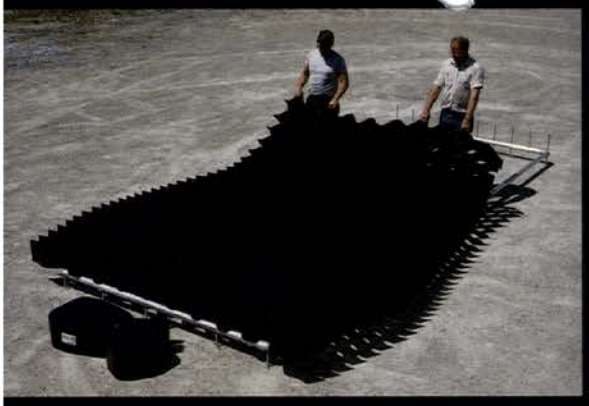
Access Roads/Porous Pavements

The Geoweb system infilled with aggregate provides a porous pavement system for access roads, parking areas and emergency lanes. With over 98% open area, the Geoweb system maximizes groundwater replenishment and minimizes surface runoff. Utilizing native granular soils provides functional, cost-effective alternative to hard surface paving. Porous pavements are also ideal in environmentally-sensitive wetland areas. The system can be vegetated when a properly designed aggregate/top soil mixture is used for the infill. Traffic frequency and loading are critical considerations. Contact Presto for proper application information.

In load support applications, the perforated Geoweb system is generally recommended over the non-perforated system with most infill types.



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Easy Installation

The Geoweb® system is designed with ease of installation in mind. Geoweb sections collapse into lightweight, compact bundles for easy shipment. During installation, sections remain flexible and easy to handle. Various methods are used for expanding the Geoweb sections. Stretcher frames are typically used for installations where dimensional tolerances are critical.

Tools & Services

- General Overview - Product data, basic engineering concepts and theory for general application of the Geoweb system.
- Application Overview - Illustrative project examples using the Geoweb system.
- Case Histories - Project specific design, construction and performance information for the Geoweb system in all application areas.
- Design Package:
  - SPECMaker® Specification Development Tool - A CD tool used to develop complete material and construction specifications.
  - System Components Guideline - A set of tables relating to application-specific system components.
  - Presto & CSI - format Material Specifications - Comprehensive guide specification and product description of the Geoweb system.
  - Request for Project Evaluation - A product checklist to insure all relevant data is collected for detailed engineering design of the Geoweb system.
  - Technical Overview - An in-depth discourse centered around the theory and application of theory for solving problems with the Geoweb system.
  - AutoCAD® Drawings - Drawings in DWG format and paper copy providing all the engineering details needed for plans with the Geoweb system.
- Construction Package:
  - SPECMaker® Specification Development Tool - A program used to develop complete material and construction specifications. Available on CD or through Presto's website.
  - Installation Guidelines - An illustrated set of installation procedures and construction tips for each application.
- Videos - Product application and construction techniques videos available in multiple languages.
- Technical Resources Library CD - All application design and constuction documents, AutoCAD® drawings, SPECMaker® tool, Power Point® presentations, videos and more.
- Project Evaluation Service - Available through authorized distributors for all applications.

For more information, call the Presto Technical Assistance Line at (800) 548-3424 or (920) 738-1336.

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