

**In this issue:**

**Case History**

A Recap of Recent Projects

**New Product / Application**

Strip Drain / Multimat G-FR

**Technical Note**

Geotextile Burst Strength

Extreme Performance

**Opinion Column**

Construction Damage

**For Your Information**

- 35<sup>th</sup> anniversary
- G and E 2019 Calendar
- Christmas Staff Gathering

**Reader's Response**

## A Recap of Recent Projects

### The 10<sup>th</sup> Year of Flexible Barrier Challenges

We brought in Maccaferri to join the flexible rockfall barrier market in Hong Kong. That was 2009, and in the next ten years, we excelled in the supply, installation, anchor design and commissioning of various systems, establishing a humble recognition. Over this period, 43 projects that stretched a total of 12 km have been completed, including one customized design and 3 ongoing ones. Maccaferri has extensive research and testing in the advancement of flexible barrier and continue to support us to develop barrier system. 🌴



*Liantang South Portal*



*Shum Wat*



*Kau To Shan*



*Clearwater Bay*



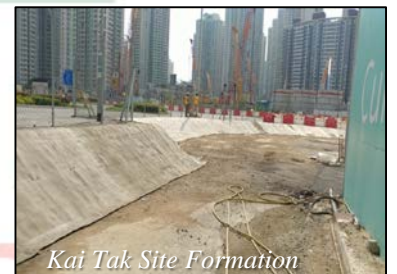
*Hong Kong International School*

### Concrete Canvas

Concrete Canvas debut in our September 2017 newsletter. This Geosynthetic Cementitious Composite Mat (GCCM) is essentially concrete in a roll, a flexible mat of formulated cement mix impregnated with fiber that hardens and set on hydration. Once unrolled on any profile and watered, it forms a strong and durable



*Lam Tin Tunnel*



*Kai Tak Site Formation*

concrete layer resembling shotcrete. Applications are found in Lam Tin Tunnel where disturbed seawall is temporarily protected from marine erosion, and at Kai Tak where side slopes are covered instantly. 🌴

### Silt Curtain Design

At Lago Nam Wan in Macau, the water is very shallow, hence the tidal change dwarfs the curtain depth. A short curtain would leave a large underneath gap and a full depth curtain would dislodge the ballast easily, effectively floats the curtain. A double ballast was employed to maintain curtain vertically at low tide when the lower part of the curtain gives way. Ask Stanley at stanley@g-and-e.com. 🌴

*Lago Nam Wan, Macau*



## Silt Curtain System

Silt curtain is sought at Tung Chung Reclamation in line with the environmental permit. A simple and economical system was designed for the apparent calm water in area largely engulfed by HKZMB island. It was fabricated in Korea in DIY 20 m spans with depth from 4.7 m to 7.4 m. 260 spans or 5.2 km were brought to site between April and May 2018, in short notice to catch the program. Deployment was simple and efficient in the following months. Apart from some accidental damage, the system largely stays intact, survived Typhoon Mangkhut with some hiccups. Subsequently, 145 spans were supplemented to extend the enclosure boundary. Contact Natural at [natural@g-and-e.com](mailto:natural@g-and-e.com). 🌴



*Silt Curtain at Tung Chung Reclamation*

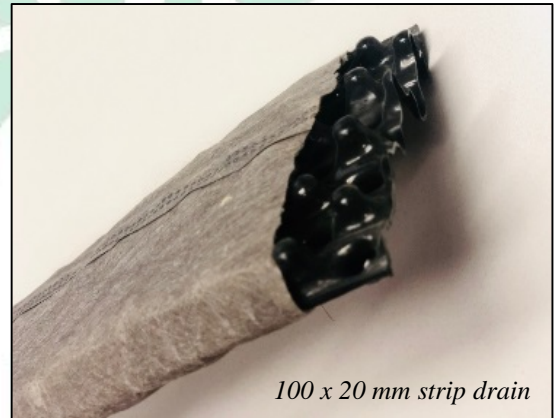
## New Product / Application

### Strip Drain

Strip drain is typical horizontal drainage geocomposite to replace costly sand or granular drainage blanket, usually complementing prefabricated vertical drain PVD to discharge water. It also finds drainage application for road, embankment, slopes, sports field, golf course and landscaping.

The material is made of a cusped core with filter geotextile wrap around, highly flexible to conform to irregular profile. Strips are of 100 to 300 mm width by 10 to 25 mm thick, with high water receptive surface and large flow capacity (test of 100 mm width x 20 mm allows 30 m<sup>3</sup> per day) to accommodate most drainage design

The package comes in standard 50 m length roll that makes handling, installation and splicing simple and economical. It can be laid on grade, fitted into trenches or nailed onto structure where drainage is sought. The pattern, spacing and layering can follow drainage Stanley has more at [stanley@g-and-e.com](mailto:stanley@g-and-e.com). 🌴



*100 x 20 mm strip drain*



*Package of strip drain*



*Strip drain complementing PVD*



*Strip drain to drainage system*



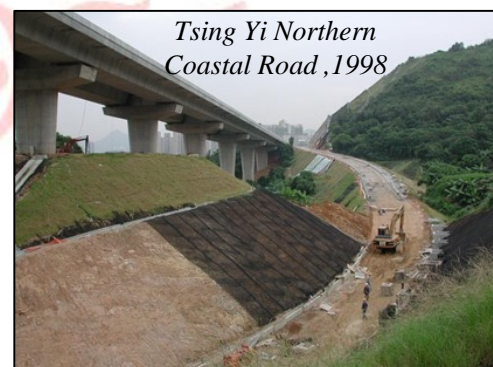
*Connection to PVD*



*Installation of PVD*

### Multimat G-FR

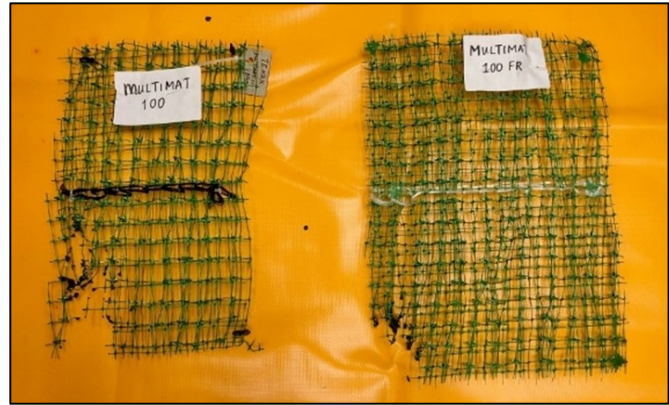
Tenax's Multimat 100 erosion mat first found application at Northern Tsing Yi Coastal road in 1998, provided surface erosion to 38° cut to support vegetation. It is still intact and performing strong today. The mat is made from polypropylene net that are UV resistant. New development includes addition of fire-retardant additive to make it inflammable. Laboratory test has shown a class "E" flammability characteristic under EB ISO 13501-1 that meets recent specification. Multimat G-FR ignites but extinguishes immediately. 🌴



*Tsing Yi Northern Coastal Road, 1998*



Multimat 100 & G-FR have the same physical characteristics



Flame will burn through Multimat 100 mat and has to be extinguished, Multimat G-FR is self-extinguish

## Technical Note

### Geotextile Burst Strength Extreme Performance

- by IGS January 2017

This video, courtesy of Karl Bester, is the demolition of a 14-story building in the inner city of Pretoria. The site has a taller education building on one side and a heritage church on the other. A non-woven needled punched geotextile was used both as shard capture at detonation points and to protect the university building, but most impressively a short time before the blast a curtain of geotextile was raised by two mobile cranes to protect the adjacent church and its stained-glass windows from damage. It took 3 seconds from first blast to total collapse into a mound of rubble – and the adjacent buildings suffered no damage. The blast curtain of geotextile retained rubble and spill, as evident at the toe of the curtain in particular. Watch the demolition [here](#). Talk to Gary at [gary@g-and-e.com](mailto:gary@g-and-e.com). 🌴

## Opinion Column

### Construction Damage

Nowadays, high end polymer science and advance production technology have resulted in geosynthetics with superior durability. While accidental mishandling is very common, construction damages are not as severe as one anticipates, let alone those with protection layers, which are intended to separate what is underneath. This, of course, leaves a negative impression of using “not new” material. Perhaps the long-term performance cannot be ascertained. But proper design with geosynthetics has already taken into



*PVD run over by excavator*



account the use of partial reduction factors to represent creep, biological & chemical effect and installation damage. Minor walk over and run over by equipment are nothing to be of great concern and panic. 🌴

*Geocomposite passed by truck*

3.

*Geomembrane under small excavator*



# G and E Times



*Excavator was driven over the leading edge of the geogrid. Track marks are prominent but damage is insignificant, hardly noticeable*

## For Your Information

### G and E 35<sup>th</sup> Anniversary

2019 is special to us. We step into our 35<sup>th</sup> year of business. While this is a humble milestone, we have been working with a few generations of engineers, participated in a great many infrastructures, struggled in horrendous weather and excelled through painful mistakes. All the harsh experience and marvelous achievements only inspire our devotion to advance our service to the construction industry.

In the coming year, we are looking for support to develop a local chapter of International Geosynthetics Society (IGS), a half a decade old organization dedicated to the evolution of geosynthetics, application, design, production, testing and education. It is hoped that of a group of devotee would bring more worldwide expertise and knowledge to support local engineering, eventually to bring the once every four years international conference to Hong Kong.

We would also like to see if the consolidation of particular specification would help project design and management to stay away from inappropriate applications, inconsistent engineering and proprietary monopoly.

As we prosper, we think it is time to payback. We are too small to care about corporate responsibility, but contribution to educating the young has always been beneficial. In this regard, IGS has a program in educating-the-educator, who mentor their the students. We endeavor to bring this here. Talk to Gary at [gary@g-and-e.com](mailto:gary@g-and-e.com). 🌴

### G and E 2019 Calendar

We have started distributing our 2019 desk calendar which has the month of December 2018, to bring forward your early 2019 importance. There is a small circulation list, and sorry, some of our associates and friends might have been missed. Limited copies are still available, Nannette at [nannette@g-and-e.com](mailto:nannette@g-and-e.com) or 25700103. 🌴



### Christmas Staff Gathering

It's the time of the year, once again, when management and our staff get together for a relaxing and enjoyable Sunday Brunch buffet, with their loved ones as well. Sumptuous menu and exciting gifts are well remembered, year after year. 🌴

## Reader's Response

Let us hear from you. Write to us at [newsletter@g-and-e.com](mailto:newsletter@g-and-e.com). For back issue, please write to [nannette@g-and-e.com](mailto:nannette@g-and-e.com) or visit our website at [www.g-and-e.com](http://www.g-and-e.com).

### Tell a Colleague

Want your colleague to receive **G and E Times** also, click [here](#).



### G and E Company Limited

14th Floor, Kiu Yin Commercial Building, 361-363 Lockhart Road, Wanchai, Hong Kong  
Tel: 2570 0103 Fax: 2570 0089 e-mail: [shan@g-and-e.com](mailto:shan@g-and-e.com) <http://www.g-and-e.com>



Unsubscribe If you do not wish to receive **G and E Times** in the future, please reply to this e-mail stating "Unsubscribe" in the subject.

Disclaimer The materials contained in this newsletter are provided for general information purpose only and do not constitute legal or other professional advice.