

Pipelines and Utilities





Protecting, marking and locating pipelines and utilities

Underground pipes and cables are key to infrastructure and protecting these assets is essential. TERRAM solutions help protect from impact damage, help warn future excavators and allow the future detection of underground pipes and cables.

TERRAM pipeline and utilities products are used extensively within the civil engineering industry to protect, identify, warn and locate pipes, cables and other buried services.

TERRAM solutions include pipeline rock protection mesh, detectable tapes for marking buried underground utility pipes and cables, underground warning tapes and cable protection covers.

TERRAM ancillary items include water valve and fire-hydrant marker plates, electrical identification signage systems and street lighting ID plates.

TERRAM Detectamesh has led the market in the design and innovation of detectable underground warning tapes for over 25 years.

Fiberweb and TERRAM™ products

Fiberweb's product portfolio includes the original, trusted and proven TERRAM geotextiles, geocells and geocomposites together with the geonets, pavers, underground warning tapes, detectable mesh and pipe protection meshes manufactured by Boddingtons Ltd (acquired 2011). The UK manufacturing capability has been expanded and centralised at Maldon in Essex.

Fiberweb provides a unique range of value-engineered solutions for the construction of highways, railways, landfills, pipelines, coastal/waterways defences and in landscape engineering. With unrivalled expertise and experience in geosynthetics, accumulated over a 40 year period since the first TERRAM products were launched, the Company remains committed to the development of innovative and cost-effective geosynthetic solutions.

The Company intends to lead the market in the design and manufacture of geosynthetics and pipeline and utility products, and continue to provide ground-breaking solutions - the next generation of TERRAM products.



Pipe protection from rock backfill

Flexible mesh products are used in major pipeline projects to replace the thick sand collar that would traditionally have been placed to cushion the protective coating around a steel pipe.

Sand is a primary resource and is not always available locally to an overland project. Even when it is, its bulk means there is a heavy environmental price to pay for its transportation. Sand requires plant for installation and it is difficult to place consistently around a pipe. A polymeric mesh is more compact to transport and it can be installed relatively quickly and with consistency. As with sand, the mesh prevents stone in the backfill from abrading and puncturing the pipe's coating which would otherwise interrupt the cathodic protection system.

TERRAM Protectamesh™ HD

TERRAM Protectamesh HD is a thick diamond mesh extruded from low density polyethylene designed to protect pipeline coatings. It cushions against the impact of rocks which could puncture the coating during backfilling and cause corrosion.

- Low-temperature flexibility for ease of handling
- Chemically inert
- Apertures allow water flow
- High impact resistance to ASTM G13 MOD
- High tensile strength
- Up to half the weight of alternatives
- Can be supplied in rolls or in pads (cut pieces) for easy installation

Once the trench has been backfilled Protectamesh HD continues to provide protection against abrasion by sharp stones during geological movements



Width m (ft)	Thickness mm (")	Unit weight g/m ² (lb/ft ²)	Aperture size mm (")	Colour
1.22 (4)				
1.54 (5)	10 (0.40)	1500 (0.32)	4 (0.16) x 4 (0.16)	Black or yellow
1.84 (6)				

TERRAM Rockshield BRS

TERRAM Rockshield BRS mesh products are manufactured from high density polyethylene and, once wrapped around a coated steel pipe, the mesh shields the coating against impact damage from rocks during backfilling.

There's a wide range of mesh widths available up to 2.5m. Rockshield products can be manufactured in cut pieces, with widths up to 2.5m wide and in various lengths. Custom mesh structures and roll sizes can be manufactured to suit individual requirements subject to minimum order quantities.

- Up to half the weight of alternatives
- High resistance to compression, tearing and abrasion
- Adaptable to all pipeline sizes
- Chemically inert
- Light, flexible and easy to install longitudinally, transversely and as a spiral
- Unaffected by temperature extremes and wet weather



Grade	Roll size m (ft)	Unit weight g/m ² (lb/ft ²)	Max pipe diameter for longitudinal wrapping mm (")	Colour
BRS 1, 2, 20	1.5 x 20 (4.9 x 65.6)	750, 950, 1200 (0.154, 0.195, 0.246)	430 (16.9)	Black
BRS 3	1.0 x 20 (3.28 x 65.6)	1200 (0.246)	270 (10.6)	
BRS 5, 6, 7	2.0 x 24 (6.5 x 78.7)	1200, 950, 750 (0.246, 0.195, 0.154)	585 (23)	
BRS 11	1.0 x 30 (3.28 x 98.4)	600 (0.123)	270 (10.6)	
BRS 12	1.54 x 30.48 (5 x 100)	500 (0.112)	440 (17.3)	
BRS 13	1.84 x 30.48 (6 x 100)	500 (0.112)	535 (21)	
BRS 15	1.65 x 20 (5.4 x 65.6)	950 (0.195)	475 (18.7)	

TERRAM product specifications can be downloaded freely from www.terram.com





Marking underground buried services

Installed halfway between the service and the surface, warning tapes clearly alert future excavators of the danger beneath.

Underground warning tape

TERRAM Utilitape is a brightly-coloured underground warning tape manufactured from polyethylene film and can be produced to your specifications: printed with any text in any language, any colour and any size.

- Standard texts are available ex-stock (see examples opposite)
- Premium and Economy grades available (Premium manufactured in accordance with ENATS 12-23 Issue 2 : 2004)
- High quality linear low density polyethylene
- Lead-free pigments used with Premium and Economy grades
- Soil ph tolerance: 2.5 to 11.0 inclusive
- Other film thicknesses can be supplied
- Custom manufacture available any colour size or language

Warning tapes alert future rogue excavations of the potential danger of the pipe or cable beneath



Special manufacture is available, with tapes printed in many colours, roll sizes, printed texts and languages

Common examples of tape colours and messages

Premium grades (150mm x 0.1mm x 365m)	Product code
CAUTION CAUTION CAUTION WATER PIPE BELOW	004126
CAUTION CAUTION CAUTION ELECTRIC CABLE BELOW	002146
CAUTION CAUTION CAUTION GAS MAIN BELOW	002467
CAUTION CAUTION CAUTION STREET LIGHTING CABLE BELOW	002344
CAUTION CAUTION CAUTION STREET LIGHTING CABLE BELOW	006168
CAUTION CAUTION CAUTION FOUL SEWER BELOW	005468
CAUTION CAUTION CAUTION SEWERAGE PUMPING MAIN BELOW	005444
CAUTION CAUTION CAUTION FIBRE OPTIC CABLES	004867
CAUTION CAUTION CAUTION TELEPHONE CABLE BELOW	004805
CAUTION CAUTION CAUTION ROAD DUCT BELOW	002405
CAUTION CAUTION CAUTION TRAFFIC SIGNAL CABLE BELOW	006045
FIN DRAIN	004928
CAUTION ELECTRIC CABLE BELOW	003662
CAUTION CAUTION CAUTION CCTV CABLE BELOW	005161
CAUTION CAUTION CAUTION OIL PIPELINE BELOW	005482

Economy grades (150mm x 0.05mm x 365m)	Product code
CAUTION CAUTION CAUTION WATER PIPE BELOW	004102
CAUTION CAUTION CAUTION ELECTRIC CABLE BELOW	002047
CAUTION CAUTION CAUTION GAS MAIN BELOW	002443
CAUTION CAUTION CAUTION STREET LIGHTING CABLE BELOW	002320
CAUTION CAUTION CAUTION FIBRE OPTIC CABLES	004843
CAUTION CAUTION CAUTION TELEPHONE CABLE BELOW	004782
CAUTION CAUTION CAUTION STREET LIGHTING CABLE BELOW	006144
CAUTION CAUTION CAUTION FOUL SEWER BELOW	045006



Marking underground buried services

Detectable marking of underground buried services

Underground buried pipes and cables can be marked with a warning mesh, designed to provide a visible warning to excavators, minimising potential damage to the services below.

Underground warning mesh

Utilitape underground warning net is brightly coloured, has a central strip that can be printed with a warning message for easy recognition during excavation and is manufactured and tested in compliance with BS EN12613:2009.

- Manufactured from virgin polypropylene
- Standard texts available ex-stock
- Can be manufactured to custom requirements including text, size, colour or language (subject to minimum order quantities)

BS EN 12613:2009 is a European-wide directive that specifies the warning characteristics for all underground warning devices. This scope covers electric cables and pipelines containing pressurised or non-pressurised fluids.

Manufactured to order in any colour, warning message, roll size and plastic mesh grade



Underground warning mesh is manufactured to this European Norm and has been independently tested and approved. Our own in-house crate test and laboratory ensures consistent quality and standards are maintained to conform to BS EN 12613:2009.

Copies of test reports are available.



Plastic pipes, fibre optic cables and unenergised cables cannot be located using standard cable avoidance tools. A detectable underground warning tape allows traceability of the buried service, while warning of the danger beneath to future rogue excavators

Detectable warning tape

Wavelay is a detectable warning tape with embedded steel tracer wires that can be located using standard cable and pipe locators used with non-metallic pipes and un-energised cables. As a backup, the highly-visible, printed tape will also show within the spoil during any subsequent excavation.

Wavelay is laid at half depth in the trench above a pipe or a cable.

- Unique design allows wires to elongate by over 25% before breaking
- Coloured tape with printed message
- Wires in constant contact with earth
- Top Printguard layer protects the wires and the warning message
- Crimping tool and crimps are available for joining detectable wires
- Available widths from 50mm – 300mm

Can be manufactured in any colour, size, text or language to suit the project



Typical tape colour and warning message	Dimensions	Product Code
CAUTION COMMUNICATIONS POWER CABLE BELOW	150mm x 100m	015986



Detectable marking of underground buried services

With a traceable stainless steel wire laminated between a printed underground warning tape and plastic mesh, underground services can be located using a CAT & Genny while providing a clearly visible warning of the danger below.

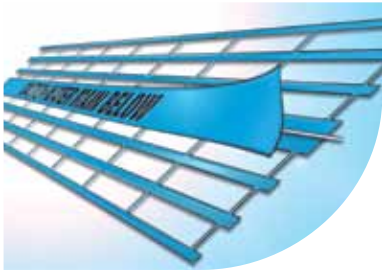
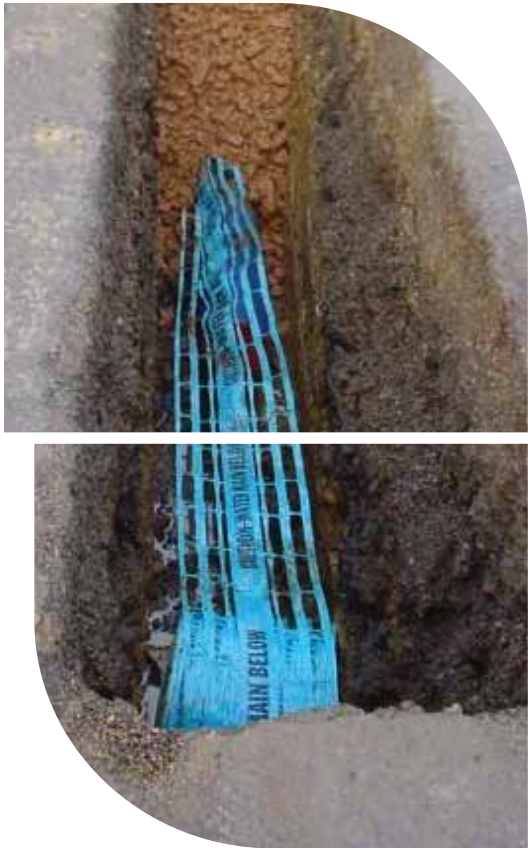
Detectable mesh

TERRAM Detectamesh is a high-strength, rot-resistant polypropylene mesh incorporating a traceable stainless steel wire or aluminium foil, and overprinted with a warning message in black.

It can be located using standard cable and pipe locators used with non-metallic pipes and unenergised cables. The highly-visible mesh will show within the spoil during any subsequent excavation.

TERRAM Detectamesh is laid at half depth in the trench above a pipe or a cable.

- Mesh manufactured to BS EN 12613:2009
- 100mm-1000mm widths (subject to MOQ's)
- Bagged for storage and protection
- Various colours available
- Customised text can be printed to order subject to a minimum order
- Crimps and crimping tool available to purchase
- Wire variations available: Copper, Insulated, Stainless steel etc.



Common tape colours and warning messages	Product code
CAUTION WATER MAIN BELOW	016747
CAUTION STORM WATER CULVERT BELOW	016846
CAUTION BURIED GAS PIPE	016167
CAUTION ELECTRIC CABLE BELOW	016181
CAUTION FIBRE OPTIC CABLES	017263
RAW WATER MAIN BELOW	045969
CAUTION SEWER BELOW	017508
CAUTION FIRE MAINS BELOW	017584
CAUTION SEWERAGE PUMPING MAIN BELOW	017607
CAUTION GRAVITY SEWER BELOW	017621
CAUTION PRESSURE SEWER BELOW	017645
CAUTION NON POTABLE WATER MAIN BELOW	017683
CAUTION FUEL PIPE BELOW	017669
CAUTION TELEPHONE CABLE BELOW	017126
CAUTION STREET LIGHTING CABLE BELOW	016082

200mm x 100m rolls. Other colours, sizes or languages can be manufactured.

Accessories

Use a crimping tool and wire crimps to ensure a continuous signal along the mesh. If it is not installed correctly then the signal may not pass from length to length. Crimping also provides the joint with sufficient strength to cope with most back fills.

Product Code	Quantity per pack	Product
Crimping Tool	1	043385
Stainless Steel Wire Crimps	100	043347



Special manufacture available in various colours, widths, mesh sizes with either wire or aluminium foil



Detectable marking of underground buried services

Protecting cables and pipes underground

Underground tapes with an aluminium foil tape are used to mark, warn and allow the detection of buried underground pipes and cables.

TERRAM Ultrastrong detectable tape

Ultrastrong is a polyethylene laminate with a strip of detectable aluminium foil at the centre.

- Available in any colour and text
- Aluminium foil with no less than 99.5% purity
- High tensile strength
- Lamination prevents corrosion

TERRAM Aluminium foil detectable tapes

Aluminium tape is a printed, coloured strip of detectable, aluminium-foil tape, permanently laminated between two layers of polymer to prevent corrosion.

Available in many colours

- All 50mm tapes are boxed in dispenser cartons
- Easily located by direct connection
- Continuous metallic tracer element

Accessories

Use a crimping tool and wire crimps to ensure a continuous signal along the tapes. If it is not installed correctly then the signal may not pass from length to length. Crimping also provides the joint with sufficient strength to cope with most back fills.

Product Code	Quantity per pack	Product
Crimping Tool	1	043385
Ultra Crimps	5	043361



Protecting cables and pipes from impact damage while warning future rogue excavators of the service line beneath is essential to protect these vital assets.

TERRAM Tapetile protection warning tape

Tapetile is the next step up from a basic warning tape, not only warning operators but affords a level of protection to the underlying service.

Manufactured from low density polyethylene and with a pre-printed warning tape bonded to one side

- Manufactured in accordance with ENATS 12-23 Issue: 2004
- Different thickness grades to suit the level of protection
- Tensile strength >10N/mm²
- Elongation at break >300%

Tapetile can be manufactured in various thicknesses depending on the level of protection required. The colour of the tape and the warning message can also be varied to suit the application.



Typical tape colour and warning message	Dimensions (w x t x l)	Product code
CAUTION - CAUTION ELECTRIC CABLE BELOW	200mm x 2.5mm x 40m	018444
	150mm x 2.5mm x 40m	018420

TERRAM product specifications can be downloaded freely from www.terram.com



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Protecting cables and pipes underground

Heavy-duty, cable covers manufactured from recycled polyethylene are suitable for use with high-voltage power cables or other buried services which require additional protection such as fibre-optic cables, water and gas pipes.

PE Cable protection covers

Lightweight PE cable covers can be laminated with coloured tape pre-printed with a suitable warning message on the top surface.

The covers are pre-drilled and supplied with joining pegs for ease of connection. The effective length once overlapped and joined is 960mm (approx).

- High impact resistance, manufactured to BS 2484
- Rot resistant
- Lightweight for low transportation and installation costs
- Available from 6mm to 18mm thick
- Different colours and dimensions are available to order subject to a minimum order
- Water, Gas and Fibre Optic cable covers can be manufactured to order
- Other warning messages and cable cover sizes can be manufactured subject to quantity



Tape colour and warning message	Dimensions	Polymer	Product code
	150mm x 6mm x 1m	Recycled LDPE	019304
	150mm x 12mm x 1m		019342
	244mm x 12mm x 1m		019281

Interlocking, rigid uPVC covers to resist the impact of shovels or picks and protect underlying cables and pipelines.

Rigid uPVC cable covers

uPVC rigid cable covers can be supplied with or without interlocking fasteners.

Manufactured in any colour with a warning message to describe the buried service (printed in black).

- Permanent, non-fading and colour-resistant print
- High specific gravity to resist floating when the soil is saturated
- Lightweight for low transportation costs and ease of installation
- Other thicknesses and widths are available on request



Width (mm)	120	150	160	180	200	220	240	250	300
Weight (g)	350	450	480	520	575	635	710	720	880
Pallet quantity	2000						1500		

All units are 2mm thick and 1m long





Protecting cables and pipes underground

Plastic meshes can be used to protect underground cables and pipes where a highly visible wide width of protection is required against future impact damage.

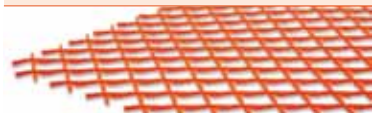

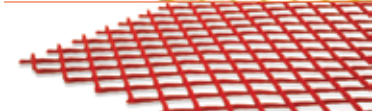
Cable and pipe protection mesh

TERRAM cable and pipeline protection mesh is manufactured from high density polyethylene and offers excellent protection to buried services. The mesh is supplied in three standard dimensions and colours.

- High impact resistance
- Each roll is bagged for protection
- Average tensile strength -100N per filament
- Excellent chemical resistance



Other colours and sizes available

Products and colours	Dimensions (w x t x l) - other widths are available	Colour	Product code
	400mm x 3mm x 50m	Orange	017720
	600mm x 3mm x 50m	Yellow	015900
	1500mm x 3mm x 50m	Red	044351



Non-fading snap-fit utility marker plates

Manufactured from Luran-S copolymer for continuous external exposure, these plates are efficient, economic and versatile for marking the positions of fire hydrants, water valves, sewers, gas valves and street lighting columns in a clear and coherent format.

Marker plates

- Manufactured from Luran-S for optimum weatherability
- Manufactured to BS3251
- Information is displayed by using alpha/numeric snap-fit inserts
- Inserts clip and lock into the plate
- Plates can be fitted directly onto walls, fences and lamp posts, or alternatively mounted onto concrete, aluminium or fibreglass posts (all available from stock)
- Aluminium and Luran-S backing plates are also available for additional security
- Plates can be specially hot-stamped with texts and symbols to display additional information

Non-fade aluminium marker posts

High-quality aluminium posts with a screw fixing channel, bituminised end, earth anchor and plastic top sealer. For additional security an aluminium backing plate is available, which can also be used for mounting plates onto fences and lamp posts by either screw or strap and buckle fixing.

- Lightweight and easy to transport
- Tough and durable
- Corrosion resistant
- Screw and earth anchors available
- Posts can also be finished in blue or yellow
- Complete easy-to-install system available
- Other sizes available.



Aluminium post	48mm x 1.5m high	034703
Aluminium backing plates	205mm x 180mm	034628

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Identification Signs

Signs and marker plates provide information, warn of dangers and mark locations for access points, junctions and valves in electrical, gas, street lighting and water industries.

Screen-printed identification signs

- Manufactured to any size and colour
- Manufactured from durable acrylic foam, PVC or aluminium
- Printed featuring design and text as required in multiple colours
- Light-fast colours and formats
- Printed areas are varnished to extend service life
- Weather and UV resistant
- Fixing holes can be pre-drilled
- Highly resistant inscription suitable for indoor and outdoor applications

Injection-moulded signs

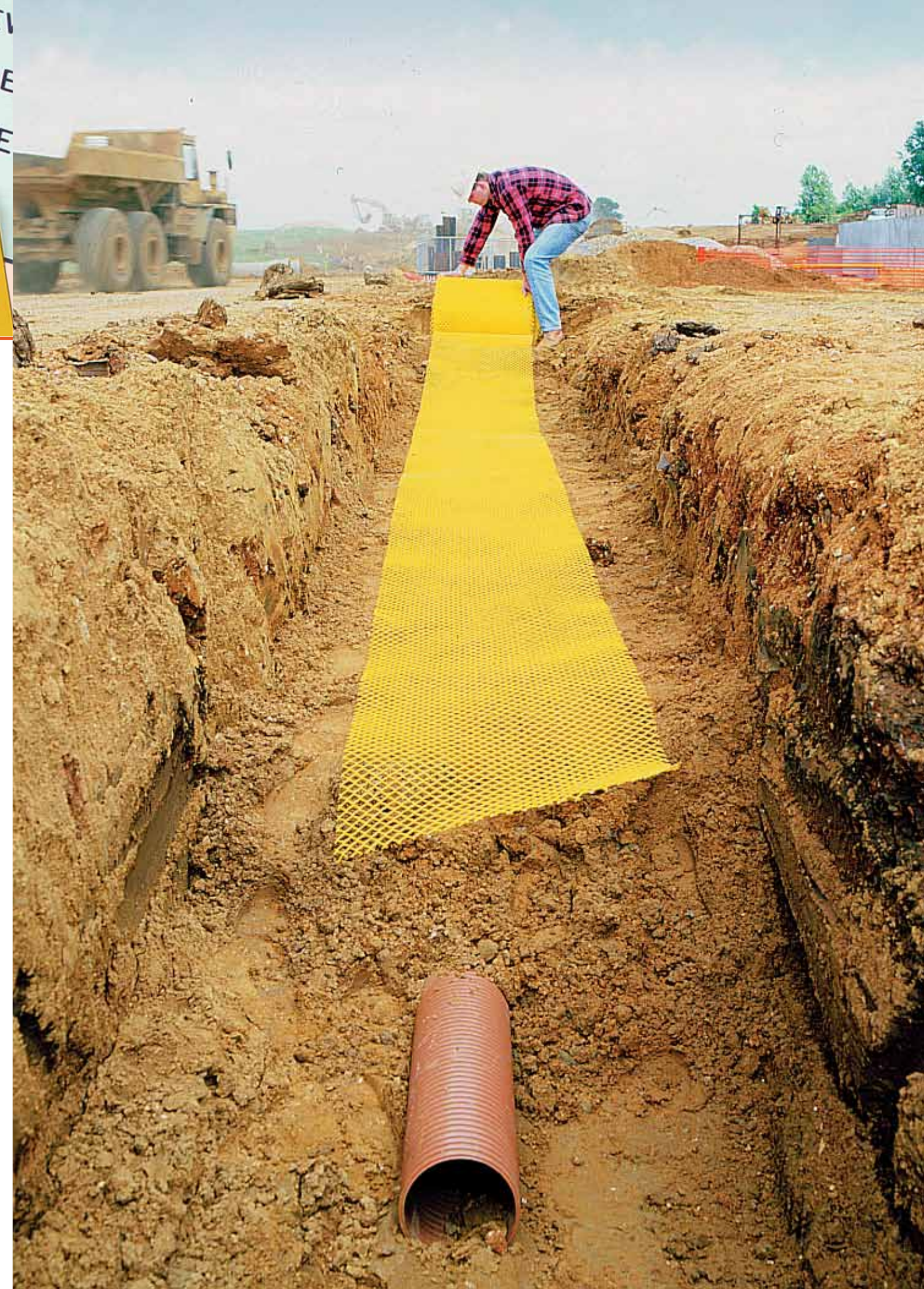
- Can be designed and shaped to fit any bespoke profile
- Can be customised to size and colour
- UV stabilised and weather resistant
- Colours are not printed so resistant to fading

Laser-engraved signs

- Text and symbols are engraved onto a PMMA with multiple and different-coloured layers
- Weather and chemical resistant
- Extremely accurate engraving allows the use of barcodes
- Available in many sizes and colours

Traffolyte engraved signs

- Manufactured from Traffolyte phenolic sheet
- Accurate engraving for bespoke signs and schematic drawings
- Available in a variety of sizes and colours
- Low-minimum-order quantity



Further market specific literature available:

- Roads & Highways
- Grass & Ground Reinforcement
- Landfill
- Coastal & Waterways
- Railways

Application specific literature, product data sheets, case studies and installation guides are available on request or can be freely downloaded from **www.terram.com**. Please contact our technical sales team for reference projects, to organise a CPD seminar and for further advice.

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A leader in material technology application

By intelligently applying our high-performance fibre technology, we are helping industry solve its most complex material challenges, and providing our customers with the answers they will need tomorrow.

fiberweb

THE NEXT ANSWER

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