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TECHNICAL INFORMATION



ProDrain® Strip Filter being placed as the outlet for ProDrain® Sheet Drain System

ProDrain® Strip Filter Drain

Effective Subsurface Drainage Systems

Product Description

ProDrain® is a fully filtered, prefabricated drainage system that is highly effective in collecting and then discharging ground water in a variety of engineering applications. The unique core profile is constructed from HDPE and is completely wrapped in a highly permeable nonwoven geotextile specifically selected for efficient drainage and filtration of a wide range of soil types. The product is available in two profile configurations.

- **ProDrain® Strip Filter 20mm wide**
- **ProDrain® Strip Filter 40mm wide**

All products generally come in convenient 50m long rolls that are lightweight and easily handled in difficult access conditions. A range of product depths are available to provide positive groundwater interception.

Product Types

Dependent upon application, the ProDrain® product is available in two convenient profile thicknesses.

ProDrain® Strip Filter 20 – Thickness 20mm

Depths available are: 100mm, 150mm, 200mm and 300mm.

ProDrain® Strip Filter 40- Thickness 40mm

Depths available are: 100m, 150mm, 200mm, 300mm, 450mm¹ and 500mm¹.

- 1) The 450mm and 500mm depth product has a reduced roll length of 25m.
2) Other depths of product are available against order.

Product Benefits

ProDrain® has a much greater infiltration area than competing conventional round or panel type subsurface drainage systems. The available contact area with a ProDrain System is some 95% available surface areas to collect groundwater flows compared to the more traditional competing systems of approximately 5% contact area. The simplicity of the systems allows the use of narrow trench profiles for conventional drainage systems through to very flat projections when used in shotcrete applications and drainage of slopes to assist in stability.

Large infiltration capacity allows for rapid collection of groundwater flows by ProDrain®.

A wide range of available depths of the ProDrain® product allows for positive intercept of groundwater flows without any “bypass” around the system. Additionally, the greater range of available ProDrain® depths allows for a hydraulic head to be developed within the ProDrain® system even when laid at very flat trench slopes.

Applications

A diverse range of applications in the management of groundwater flows can be addressed with the use of the ProDrain® product.

Roadside Edge Drains

The structural strength of the ProDrain® product combined with the selected outer geotextile wrap makes ProDrain an excellent choice to provide efficient sub surface pavement drainage.

Sports Fields

Use of sport fields is in high demand with constant demands made on their ability to remain playable even after excessively high rainfall events. The unique design of the ProDrain® product and the ability of the product to collect water rapidly through the product will allow minimal disruption to playing surfaces.

Retaining Walls & Shotcrete

ProDrain® may be utilised either vertically or horizontally to provide drainage against shotcrete stabilisation structures, as drainage interfaces in soil reinforced retaining structures or in highly specialist applications such as tunnels.

Landfill

Gas and leachate collection systems are often required in lining and capping of landfills. ProDrain® can provide effective drainage for both leachates and gas encountered in municipal waste structures.

Mining

The collection of mining waste or liquid processing streams from mining operations may require the use of ProDrain® drainage systems. ProDrain® has a high chemical resistance to a wide range of waste streams likely to be found in mining applications.

Application	Quick Product Selection Guide	
	ProDrain®PD20	ProDrain®PD40
Shotcrete Drainage	✓	✓
Leak Detection	✓	✓
Leachate Collection	✓	✓
Subsoil Drainage	✓	✓
Collector Drain		✓
Cut-off Drains		✓
Road Edge Drainage		✓



Figure 1 ProDrain® 20mm



Figure 2 ProDrain® 40mm

Technical Characteristics

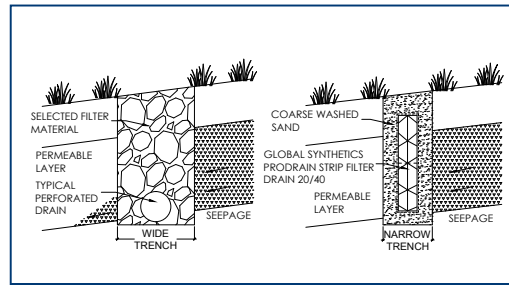
PRODUCT GRADE	ProDrain® 20 (PD20)				ProDrain® 40 (PD40)							
DIMENSIONAL CHARACTERISTICS												
Product Thickness (mm)	20				40							
Product Depths Available (mm)	100	150	200	300	100	150	200	300	450	500		
Roll Lengths (m)	50	50	50	50	50	50	50	50	25	25		
GEOTEXTILE												
Polymer	PP/PET				PP/PET							
Full Encapsulation of Core	Yes				Yes							
Strength Class RMS, TMR	Class A				Class A							
Filtration Class RMS, TMR	All filtration classes				All filtration classes							
CUSPATED CORE												
Polymer	HDPE				HDPE							
Crush Strength (kPa)	200				200							
Stiffness RMS Spec.3557	Compliant				Compliant							
HYDRAULIC DATA COMPOSITE PRODUCT												
Available Infiltration Area	> 95% available				> 95% available							
Flow Rate ⁽ⁱ⁾	l/min				l/min							
	100	150	200	300	100	150	200	300	400	450	500	
Hydraulic Gradient i=0.01	2.5	3.8	5.0	7.6	4.0	6.0	8.0	12.1	16.1	18.1	20.1	
Hydraulic Gradient i=0.1	9.5	14.3	19.1	28.6	13.3	19.9	26.5	39.8	53.0	59.7	66.3	
Hydraulic Gradient i=1.0	32.1	48.2	64.2	96.3	33.1	49.7	66.2	99.4	132.5	149.0	165.6	

(i) Tested ASTM D4716 @100 kPa

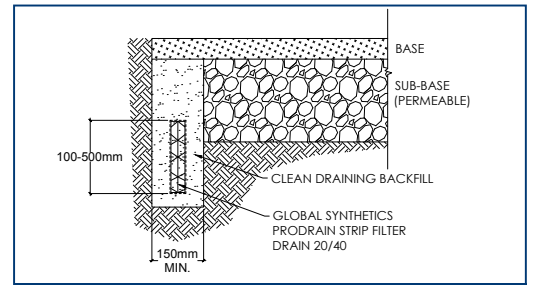
Product Quality

All product is manufactured in a fully accredited ISO 9001 facility using the latest in extrusion and manufacturing capabilities. For large project applications we can offer unique product development and manufacture to your specific specification requirements.

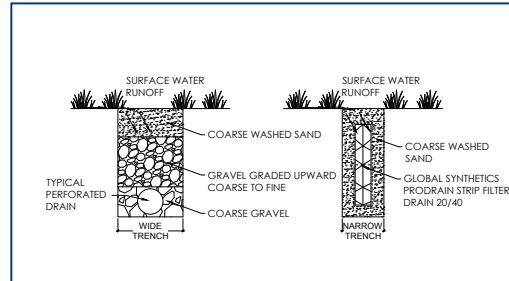




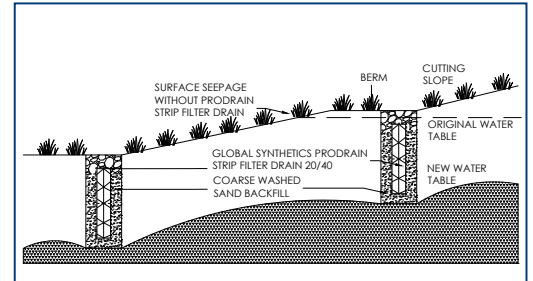
Traditional v ProDrain® Interception Detail



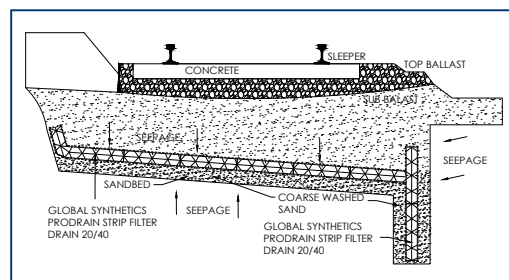
Use of ProDrain as a Pavement Cut-Off Drain



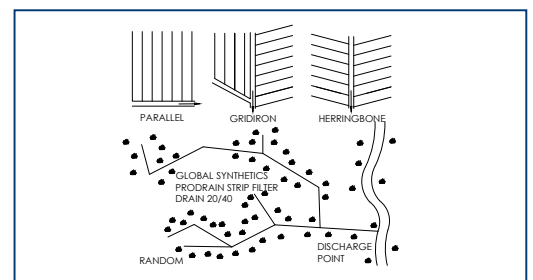
Traditional v ProDrain® Surface Drainage Detail



Use of ProDrain® for Stabilisation and Control of Seepage on Unstable Slopes



Use of ProDrain® as an Under Blanket Drain



Use of ProDrain® in Broad Acre Areas such as Sporting Fields

Installation Procedure Overview

ProDrain® Strip Filter drainage products are easy to install, both vertically and horizontally. Vertical applications generally require the drain to be fixed suitably to a cut soil/rock surface that may be later sprayed with concrete. The drain can be tied to formwork, or fixed firmly to the cut face until covered. The top end of the ProDrain® can be terminated by folding the geotextile over and taping to seal against the migration of fines. At the toe of the cutting, the strips may be inserted into a collector drain by creating a slot in the collector drain and sealing against fines ingress by taping the joint.

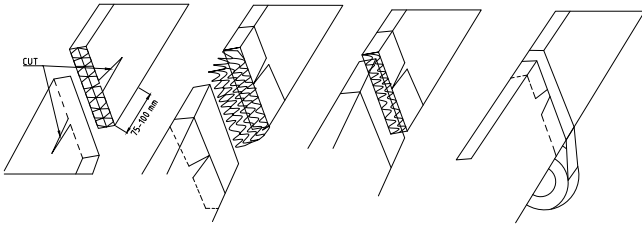
In conventional horizontal use in cut-off drains, sports field/broad acre drainage or road edge drainage, the ProDrain® Strip Filter Drain is placed and oriented vertically in an excavated trench as required. The trench need only be wide enough to accept the drain, generally a minimum of 100mm wide. The ProDrain® shall be laid with a minimum 0.5% gradient, in such a manner to prevent localised ponding. The top of the drain should have a minimum soil cover of 200mm prior to compacting the trench fill with standard compaction equipment. If heavy compaction equipment (e.g. >15 tonne) is to be used, the cover soil thickness should be increased to a minimum of 300mm. The trench can be filled with a free draining coarse sand or fine aggregate e.g. pea gravel, or in heavily loaded pavement, a no-fines concrete backfill may be selected.

It may be helpful to use temporary stakes in the trench when placing the ProDrain® to keep the drain positioned in the excavated trench during the backfilling process. These stakes can be removed once the backfilling operation is completed.

All ProDrain® products are supplied to site in a protective wrap. Keep wrapped until ready for use and do not leave the product exposed prior to backfilling or covering for longer than 2 weeks. Any sections of ProDrain® product or geotextile that is damaged may be simply cut out and replaced or joined using the method of end to end joining.

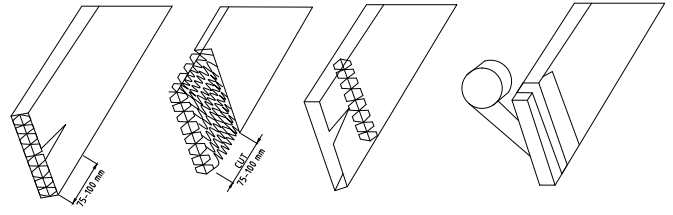
INSTALLATION GUIDE

Joining & Splicing



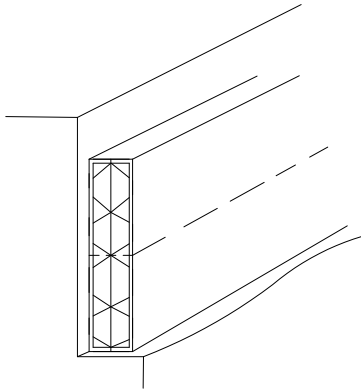
ProDrain® Strip Filter Drain forms a positive, lock joint when spliced as shown. Care must be taken to seal all seams in the geotextile filter with tape.

Sealing



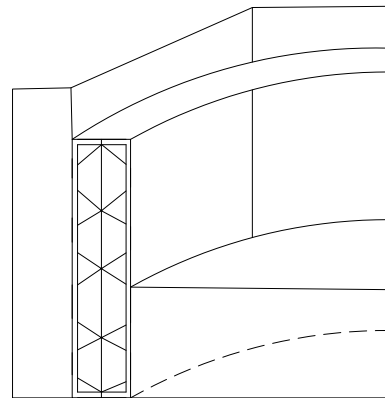
ProDrain® Strip Filter Drain ends must be sealed to prevent soil fines from penetrating the drain.

Self-contained Gradient



ProDrain® Strip Filter Drains are less grade sensitive than pipe drains due to their "deep fin" configuration, resulting in a self-contained hydraulic gradient. Being relatively stiff in the in-plane direction, ProDrain will also bridge minor irregularities in the base of the trench. Care should be taken, however, to follow the overall design grade during installation.

Turns or Bends

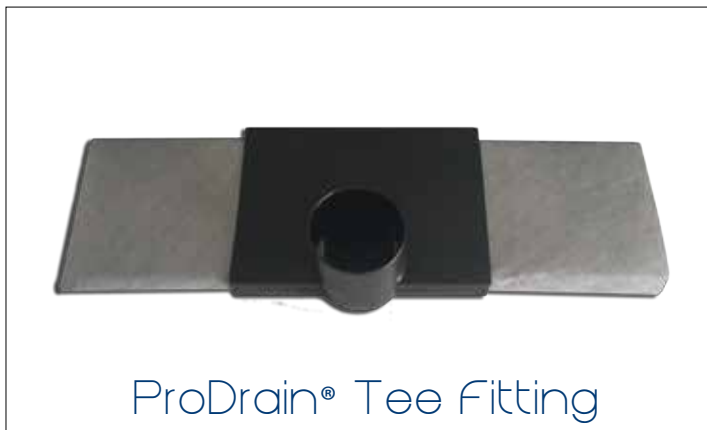


ProDrain® Strip Filter Drain will bend easily in the lateral plane without pinching or cracking. No elbows or connectors are required to accommodate changes in the direction of the trench.



Fittings Available

A wide range of fittings are available to suit a variety of applications. If we do not have the fitting that you require we can quote you to manufacture such speciality fittings for you. Standard fittings are available for end connection and tee fittings to standard UPVC 100mm pipe. See our Technical Note – www.globalsynthetics.com.au for the data sheet on our range of fittings.



New to our fitting range are tee and end fittings that are extruded from HDPE that provide positive connection to standard 100mm storm water pipe. Using standard plumbing adaptors larger or smaller pipe may be accommodated. Please check availability for the ProDrain product selected.







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