

subsurface drainage

Geotextile Applications

- Overview
- Subgrade-Roadbase Improvement
- Pavement Enhancement

Subsurface Drainage

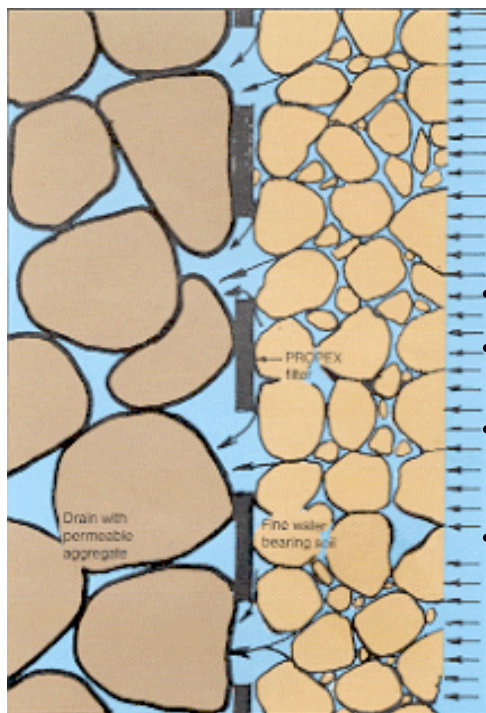
- Erosion Control
- Walls & Slopes
- Containments
- Silt Fence & Landscape
- Railroad



- **Areas of Application**
- **Design Challenges**
- **Benefits**
- **Recommended Products-AASHTO M 288 00**
- **Construction Procedure-trench drain**

Areas of Application

Geotextiles have replaced graded soil filters for drainage of virtually all structures, including underdrains, dewatering trenches, intercept drains, pavement edge drains, walls and dams drains, leachate collection/detection removal drains, sport field drain, etc.



Design Challenges

To perform, the filter fabric must allow liquids to pass through the geotextile and into the drainage media (granular soil and/or perforated pipe) throughout the design life of the drainage system. At the same time, the filter fabric must retain the upstream soil fine particles and prevent them from migrating, or "piping" into the drainage system. The selection of a particular filter fabric can be accomplished following four basic criteria:

- **Retention criteria** - The filter fabric openings must be small enough to prevent excessive migration of soil
- **Permeability criteria** - The filter fabric must be permeable enough to allow liquids to pass through it without a significant reduction in flow.
- **Clogging criteria** - The filter fabric must have a significant number of pore openings, such that if soil particles block or clog a few openings path the flow of the filter fabric will be greater than the required system permeability.
- **Survivability criteria** - The filter fabric must exhibit adequate strength, chemical resistance, and environmental resistance to prevent it from becoming damaged during installation and throughout the design life of the drainage system.

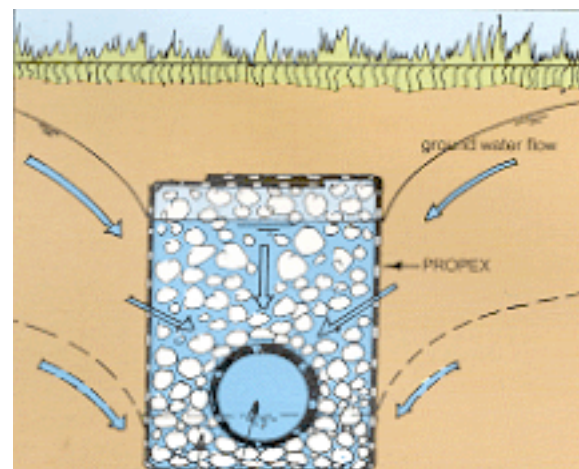
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Benefits

Compared to conventional granular soil filters, geotextiles offer advantages by providing:

- consistent and continuous filter,
- reduced excavation,
- reduced environmental impact,
- simplified, higher quality construction,
- reduced time of construction, and
- a substantial reduction in material costs.

Also, allows use of more structurally efficient free draining open graded base materials,



Recommended Products - AASHTO M288-00

Propex Fabrics has a broad spectrum of geotextiles designed for drainage applications. Both ProPex woven and nonwoven geotextiles perform well when draining stable, coarse-grained soils. Nonwovens are generally used when the retention of fine soil particles is critical to the performance of the drainage system. Our extensive product line enables you to choose a geotextile that precisely meets your project conditions and AASHTO M 288-00 specification. Because the product you need will vary with construction conditions, your local distributor or Propex Fabrics technical engineers can assist you in selecting the ProPex geotextile that is appropriate for your job.

Subsurface Drainage Geotextile Requirements AASHTO M 288 00

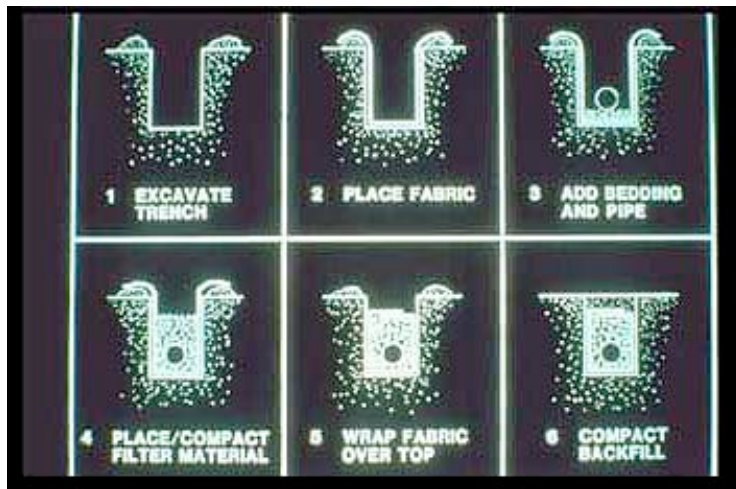
Product Line Style	Class 1			Class 2			Class 3		
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ProPex Woven Geotextiles									
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*= meets AASHTO default requirements
 p= provisionally meets AASHTO requirements, subject to engineer approval

Construction Procedure

A schematic of the construction procedures for a geotextile lined drainage trench is presented below.

1. Excavate trench
2. Place filter fabric
3. Add bedding and pipe
4. Completion of drain. then, backfill to grade.



- Excavate trench
- Placement
- Install aggregate and pipe
- Completion