

TECHNICAL REFERENCE / SEPTEMBER 2026

Geosynthetics

Technical Selection Guide

Nine product constructions | B2B sourcing and project enquiry reference

Purpose

This guide helps buyers prepare a meaningful enquiry: identify the engineering function, shortlist a material construction, and request the correct grade-specific documents. Example ranges are transcribed from supplier literature supplied to BRELVO and are not an offer, a guaranteed specification, or a design recommendation.

Document status

This is an original preliminary selection brief, not an independent laboratory report, certification, or evidence of BRELVO-owned manufacturing. Final values, standards, availability, compliance and batch results must be checked against the quoted product and project requirements. Product images on the website are illustrative.

What to send with an enquiry

Application and drawings; design specification; required polymer and grade; key mechanical or hydraulic values; roll quantity and dimensions; destination; schedule; and required test, quality or traceability documents.

Product sections

- 01 PET Filament Nonwoven Geotextile
- 02 PP Nonwoven Geotextile
- 03 PP Flat-Tape Woven Geotextile
- 04 HDPE Uniaxial Geogrid
- 05 PP Biaxial Geogrid
- 06 Geocell Confinement System
- 07 HDPE Geomembrane
- 08 Composite Geomembrane
- 09 Geosynthetic Clay Liner

GEOTEXTILES / PRODUCT 01

PET Filament Nonwoven Geotextile

A needle-punched polyester nonwoven for separation, filtration, drainage and protection layers. Choose the grade by the actual soil, hydraulic and mechanical design, not by mass alone.

Indicative parameters

Parameter	Indicative reference	Status
Mass per unit area	100-800 g/m ²	Supplier literature example; confirm quoted grade
Roll width	1-6 m	Supplier literature example
Construction	PET continuous filament, nonwoven	Confirm production route and certificate

Typical applications to review

- Road and rail subgrade separation
- Filtration and drainage beneath granular layers
- Cushioning and protection adjacent to liners

Engineering selection checks

- Tensile strength and elongation in both directions
- CBR puncture and tear resistance
- Apparent opening size and water flow
- Roll width, overlaps, exposure and survivability

Technical documents

Request the grade-specific datasheet and current batch test results for mass, tensile, puncture and hydraulic properties.

User-supplied Geotextile.pdf, PET filament section and property table.

GEOTEXTILES / PRODUCT 02

PP Nonwoven Geotextile

A polypropylene nonwoven option for separation and filtration, including sites where polymer selection matters for the chemical environment. The supplied brochure mixes the terms filament and staple fiber; construction must be verified before quoting.

Indicative parameters

Parameter	Indicative reference	Status
Mass per unit area	100-800 g/m ²	Supplier literature example; confirm quoted grade
Roll width	1-6 m	Supplier literature example
Fiber construction	PP nonwoven	Filament versus staple fiber to be confirmed

Typical applications to review

- Separation below roads and working platforms
- Filtration behind drainage or retaining structures
- Protective layer in environmental lining systems

Engineering selection checks

- Mass and thickness
- Tensile, puncture and tear performance
- Opening size and water permeability
- Chemical exposure and installation damage

Technical documents

Request a current grade-specific datasheet stating the fiber type and batch-specific mechanical and hydraulic tests.

User-supplied Polypropylene filament geotextile.pdf and Geotextile.pdf PP section.

GEOTEXTILES / PRODUCT 03

PP Flat-Tape Woven Geotextile

A woven polypropylene flat-tape construction for separation and tensile reinforcement where the design requires a woven fabric. The supplied detailed table is for PP, so no PET woven grade is assumed here.

Indicative parameters

Parameter	Indicative reference	Status
Mass per unit area	120-520 g/m ²	Supplier literature example; confirm quoted grade
Roll width	1-6 m	Supplier literature example
Construction	PP flat tapes, woven	Confirm warp/weft grade and coating

Typical applications to review

- Road and railway subgrade reinforcement
- Embankment separation and stabilization
- Hydraulic or erosion-control works where specified

Engineering selection checks

- Warp and weft tensile strength and elongation
- Opening size and water flow
- Puncture and tear resistance
- Seams, overlaps and installation loading

Technical documents

Request the exact woven grade table and current test report for both principal directions.

User-supplied Geotextile2.pdf, PP flat-wire woven section.

GEOGRIDS & CONFINEMENT / PRODUCT 04

HDPE Uniaxial Geogrid

A high-density polyethylene grid designed for reinforcement mainly in one direction. Long-term design strength, interaction with fill and connection details matter more than a nominal label alone.

Indicative parameters

Parameter	Indicative reference	Status
Nominal tensile strength	50-220 kN/m	Supplier sample grade range; not design strength
Roll width	1-2.5 m	Supplier literature example
Polymer	HDPE	Confirm quoted grade and manufacturing method

Typical applications to review

- Reinforced soil walls
- Steep slopes and embankments
- Foundation support where uniaxial reinforcement is specified

Engineering selection checks

- Short- and long-term tensile properties
- Creep, installation damage and durability factors
- Aperture, fill interaction and pullout
- Facing connection and design orientation

Technical documents

Request grade-specific tensile curves, long-term design data and project-relevant quality records.

User-supplied Plastic Geogrid.pdf, HDPE uniaxial product properties.

GEOGRIDS & CONFINEMENT / PRODUCT 05

PP Biaxial Geogrid

A polypropylene grid with reinforcement in two principal directions, considered for aggregate stabilization in pavement bases and temporary works. Aggregate interlock and stiffness must be checked against the project design.

Indicative parameters

Parameter	Indicative reference	Status
Nominal MD/CD tensile	15/15 to 50/50 kN/m	Supplier sample grades; not design strength
Roll width	1-6 m	Supplier literature example
Polymer	PP	Confirm quoted grade

Typical applications to review

- Paved and unpaved road base stabilization
- Construction working platforms
- Rail and hardstand aggregate layers where designed

Engineering selection checks

- Tensile response in both directions
- Aperture size, rib and junction properties
- Aggregate grading and layer thickness
- Installation damage and site traffic

Technical documents

Request a current grade-specific datasheet, junction data and relevant quality tests.

User-supplied Plastic Geogrid.pdf, PP biaxial product properties.

GEOGRIDS & CONFINEMENT / PRODUCT 06

Geocell Confinement System

An expanded three-dimensional polymer cellular system that confines granular or soil infill. Panel design should be checked together with anchorage, infill and site loads.

Indicative parameters

Parameter	Indicative reference	Status
Cell height	75-200 mm	Supplier sample configurations
Weld spacing	330-712 mm	Supplier sample configurations
Material	HDPE or PP strips	Confirm quoted configuration

Typical applications to review

- Low-volume access roads and soft-ground support
- Slope surface stabilization
- Channel and shoreline erosion-control systems

Engineering selection checks

- Cell height, sheet thickness and weld spacing
- Seam peel strength and panel size
- Infill gradation and compaction
- Anchorage, drainage and edge restraint

Technical documents

Request a configuration drawing and current seam, strip and panel test records.

User-supplied Geocell.pdf, geocell product properties and installation section.

LINER SYSTEMS / PRODUCT 07

HDPE Geomembrane

A low-permeability polymer sheet used in designed containment systems. Smooth and textured surfaces serve different interface and slope conditions; seam quality is a critical project control.

Indicative parameters

Parameter	Indicative reference	Status
Nominal thickness	0.5-2.5 mm	Supplier sample grades
Surface	Smooth or textured	Confirm grade and interface design
Polymer	HDPE	Confirm resin and formulation

Typical applications to review

- Reservoir and water containment liners
- Environmental and industrial barrier systems
- Pond and canal liners where designed

Engineering selection checks

- Thickness and density
- Tensile, tear, puncture and stress-crack properties
- Chemical and UV exposure
- Subgrade protection, welding and seam testing

Technical documents

Request the quoted grade datasheet and current roll/batch quality records; obtain a project-specific seam QA plan.

User-supplied Geomembrane.pdf, HDPE sample property table.

LINER SYSTEMS / PRODUCT 08

Composite Geomembrane

A factory-bonded geotextile and polymer liner assembly that combines barrier and protective functions. Layer orientation and field joining details must match the design.

Indicative parameters

Parameter	Indicative reference	Status
Sample membrane thickness	0.2-1.0 mm	Supplier sample grades; assembly-dependent
Layer layouts	1G/1M, 2G/1M	Geotextile/geomembrane configurations
Geotextile	PET or PP nonwoven	Confirm mass and bonding

Typical applications to review

- Water-conservancy lining
- Canal and pond barrier assemblies
- Protective liner combinations where specified

Engineering selection checks

- Layer sequence and individual layer properties
- Membrane thickness and geotextile mass
- Peel and puncture performance
- Overlaps, seams and protection details

Technical documents

Request the exact composite construction drawing, grade data and current peel/barrier tests.

User-supplied composite geo-membrane.pdf, construction and property sections.

LINER SYSTEMS / PRODUCT 09

Geosynthetic Clay Liner

A bentonite-based hydraulic barrier integrated with geotextile carriers. It is a system component, not a substitute for project-specific chemical, hydraulic and slope-stability design.

Indicative parameters

Parameter	Indicative reference	Status
Core	Sodium bentonite	Confirm grade and compatibility
Carrier / cover	Woven / nonwoven options	Confirm exact construction
Grade values	By approved datasheet	No generic performance guarantee

Typical applications to review

- Environmental barrier systems
- Ponds and hydraulic works where specified
- Composite lining assemblies

Engineering selection checks

- Bentonite mass and free-swell index
- Hydraulic conductivity and chemical compatibility
- Peel, tensile and interface shear properties
- Overlap, hydration and confinement conditions

Technical documents

Request a current grade-specific datasheet and test report under the relevant project liquids and boundary conditions.

User-supplied GCL, Cement mat.pdf, GCL section only; cement-mat content excluded.