Erosamat Types 1, 2 and 4

abg creative geosynthetic engineering

Installation Guide

General Advice

These instructions should be read in conjunction with the contract specification and drawings. They are intended to provide guidance in normal installation situations and are addressed to the installer on site. If there are any questions related to the design, unusual installation challenges, or any doubt, consult ABG for further advice. In all situations, responsibility for installation remains with the Installer.

Description

Erosamat Types 1, 2 and 4 are biodegradable erosion control mats to protect soil surfaces from wearing away while vegetation becomes established. Depending on the product, the service lives vary from one to five years. For permanent erosion protection, ABG Erosamat Type 3 is available.

Erosamat Types 1, 2 and 4 are surface erosion control products and are not intended to stabilise slopes that are unstable at depth, or to retain considerable thicknesses of topsoil on slopes. ABG will be pleased to advise regarding slope stabilisation systems if required.

Erosamat Type 1 and 1A (**Fig. 1**) are intended for use over top-soiled and seeded areas to provide short-term protection from rain bombardment. Type 1 may alternatively be hydroseeded after laying.

Erosamat Type 2 (**Fig. 2**) is a longer life product, available in a range of weights to suit a variety of soil and exposure conditions and is also suitable for hydroseeding.

Erosamat Type 4K PP (**Fig. 3**) is an erosion control blanket consisting of 100% coir fibre stitched together between two binding layers of photodegradable polymer material. Erosamat 4K PP provides 99% soil cover and will slowly degrade to form nutrients to support vegetation. A separate data sheet is available detailing grass seed mixes recommended for use with Erosamat Type 4 in a variety of situations – please enquire. Hydroseeding may also be used.

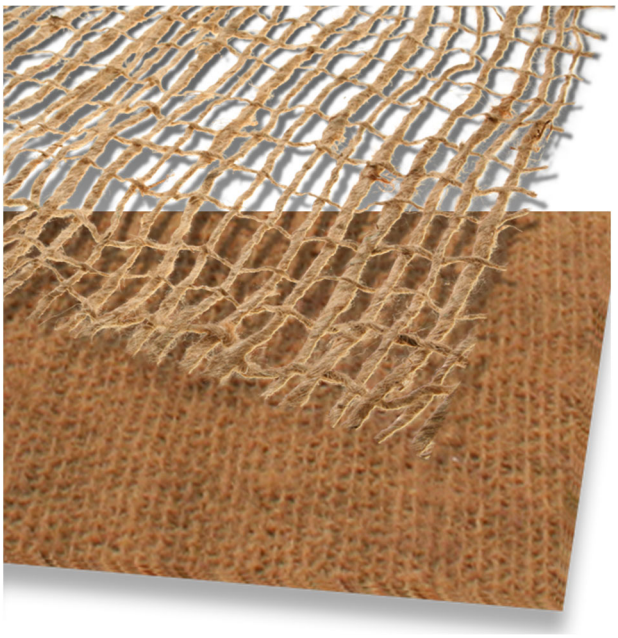

Fig. 1: Erosamat Type 1 & 1A

Fig. 2: Erosamat Type 2

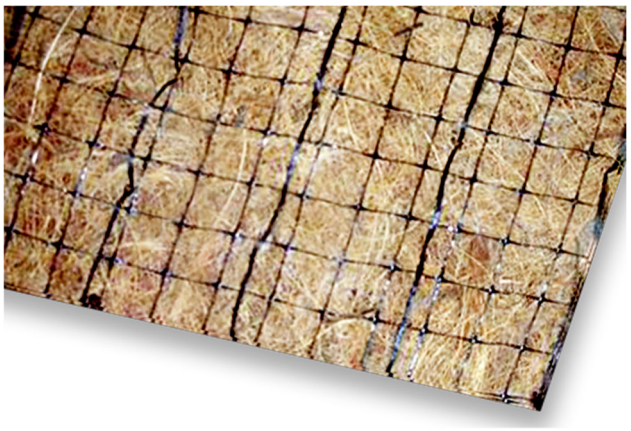

Fig. 3: Erosamat Type 4K PP

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Material handling

During transportation and storage, Erosamat should be kept dry, in well-ventilated conditions, clear of the ground, and covered to prevent light exposure. Although the products are resistant to UV light, they must be covered if stored for long periods (**Fig. 4**). Store on a firm, flat surface and do not stack more than 5 rolls high. Roll or carry (but do not drag) the **Erosamat** to the place of work.

Please refer to data sheets for specific recommendations regarding applications. ABG will be pleased to advise on installation details for specific sites – if in doubt, please enquire.

Fig. 4: Store rolls clear of ground & prevent light exposure

Supply

Erosamat is supplied in rolls without outer packaging (**Fig. 5**), the following are standard dimensions:

Fig. 5: Supplied in rolls without outer packaging

Erosamat Type	Typical Dims	Weight
Type 1	1.22m wide x 68.5m long	42 kg
Type 1A	1.83m wide x 46m long	16.8 kg
Type 2E	2m wide x 25m long	45 kg
Type 2D	2m wide x 50m long	70 kg
Type 4	2m wide x 50m long	40 kg

Equipment Required (Fig. 6)

- safety knife for cutting Erosamat material
- steel or biopins and hammer for pinning
- friable topsoil cover and rake
- machinery (depending on application); excavator, dumper, lifting equipment (slings / boom mount for heavier rolls)

Fig. 6: Equipment required (from top left - safety knife, steel pins / biopins, hammer, friable top soil & rake, construction machinery (depending on specific application) excavator, dumper and lifting equipment for heavier rolls

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Site Preparation and Setting Out

Direct contact between Erosamat and the underlying soil surface is essential. Surfaces to be covered should be shaped to smooth profiles using a grading bucket or blade (Fig. 7). Protruding stones or clods should be tamped flush with the surface or removed by hand. The slope should be properly compacted, free from existing vegetation, roots and stones and able to sustain vegetative growth. Voids, where possible, should be filled to offer a flat and even profile

Where topsoil is required on slopes steeper than approximately 1 in 3 (18°), the surface beneath the topsoil should be roughened to resist slipping of the topsoil. Slopes of 1 in 1.5 (34°) or steeper may require shallow benching (Fig. 8). Unless hydroseeding is specified, seeding with an appropriate grass or wildflower seed mix must be carried out prior to laying Erosamat Types 1, 2 and 4.

Fig. 7: Smooth out slopes using a grading bucket or blade

Fig. 8: Steeper slopes may require shallow benching

Installation

Step 1 – Excavate Anchor Trenches. Excavate anchor trenches at the toe, crest and sides of the slope (if specified on the drawings) not less than 200mm deep, or as specified on the drawings (see alternative trench details overleaf).

Step 2 – Place Erosamat in Anchor Trench. Place **Erosamat** down the side and along the base of the anchor trench at the top of the slope (Fig. 9). Pin at 1m centres or as specified on the drawings.

Fig. 9: Place Erosamat at the base of the anchor trench

Step 3 – Lay Erosamat on Slope. Laying of Erosamat Erosamat should generally be laid with the roll length running down slope, with overlaps at ends or edges laid in 'tile fashion' to suit the direction of any water flow. However, in channels or where the slope length corresponds to a roll width it is preferable to lay Erosamat across the slope in order to minimise cutting and lapping. The materials should preferably be unrolled in their final position and excessive dragging should be avoided to prevent damage.

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Sheets should be pulled out flat but not excessively tight. This is particularly important at concave breaks in slope, where otherwise surface contact would be lost. Laps of 50 to 100 mm at sheet edges and ends are generally appropriate.

Step 4—Pinning. Ensure that the **Erosamat** is in direct contact with the ground IN ALL PLACES by inserting additional pins in any hollows or undulating ground. Avoid walking on the surface unnecessarily. Standard pins for fixing Erosamat are 150mm biopins or 300 mm long, 4 mm diameter 'J-pins'. Other types of pins may be required for loose soils, hard or stony subsoils or other unusual conditions.

The minimum pinning requirement on smooth, level or gently sloping surfaces is approximately 1 pin per square metre (Fig. 10), with pins at maximum 1m spacing along laps, sheet edges and the centre line of the roll width for 2m or 2.2m wide products. Erosamat Type 1A may require additional pins to ensure that vegetation grows through the mat rather than lifting it. On typical earthwork slopes of 1 in 2 to 1 in 4, pinning at the rate of 2 pins per square metre (700 mm spacing) is recommended, see diagram overleaf. On steeper slopes and areas subject to water flow, 4 or more pins per square metre (500 mm or closer spacing) will be required. In all cases, additional pins will be required for exposed sites, uneven surfaces and concave breaks in slope. Detailed advice is available on a site specific basis, please enquire.

Step 5 – Place Erosamat in Toe Trench. Cut **Erosamat** to length and pin to bottom trench and side trench where required (Fig. 11). Backfill trenches with excavated material or as specified on the drawings.

Step 6 – Place Topsoil and Seed. The **Erosamat** should be filled and covered, from the bottom to the top of the embankment, to a depth of 10mm of friable topsoil (Fig. 12), approx. 75-100kg/m². Seed should be spread over the surface and raked into the topsoil, or placed in accordance with the seed supplier's instructions. Alternatively, the bare mat may be hydroseeded — especially on steep slopes (Fig. 13). It is essential to ensure that vegetation growth does not inhibit the direct contact between the ground and the **Erosamat**. Watering is essential if the slope is likely to dry out.

Fig. 10: Pin into place at 1m centres or as specified on the drawings. Insert additional pins into any hollows / undulating ground

Fig. 11: Pin to toe and side trenches where required

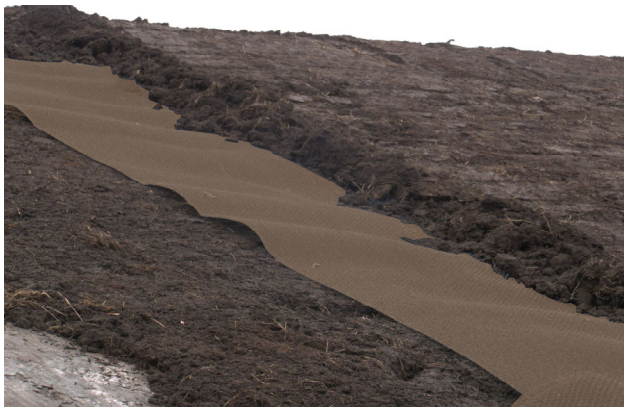

Fig. 12: Place friable topsoil and seed

Fig. 13: Hydroseeding of steep slopes

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Further Details

Alternative Anchorage Details. Alternative options for anchoring the top, bottom or sides of the Erosamat for various applications are shown in Fig. 14.

Overlaps – Cross-slope Overlaps. A minimum of 300mm 'roof tile' overlap should be provided. Pins should be placed at the top and bottom of the overlap at 500mm centres or as shown on the drawings (Fig. 15).

Overlaps – Down-slope Overlaps. A minimum of 100mm overlap should be provided with pins placed in a single line at 500mm centres (or as shown on the drawings (see Fig. 15). Where cross-slope water flows are expected the upstream mat should be placed over the downstream mat.

Fixing Pin Details. Fixing pins are biopins, "J" or "U" shaped and are specified dependent on ground conditions, slope and loadings with "U" pins typically required on watercourses.

Intermediate Pinning. A general guide to intermediate pinning frequency depending on the slope angle is shown in Fig. 16. In areas of high turbulence or increased velocities, extra pinning should be used.

For further pinning guidance on the Erosamat range of products please refer to the 'ABG Pinning Erosamat to a slope TECH NOTE' document.

Submerged Areas. The use of 2-5mm stone chippings should be considered where Erosamat is to be permanently submerged (chippings to be placed prior to topsoil fill in non-submerged areas).

Planting. Shrubs and plants can be planted through Erosamat by cutting an 'L' shape. Once planted, the **Erosamat** must be pinned locally around the plant. Full erosion protection cannot be guaranteed until all planted vegetation has taken hold.

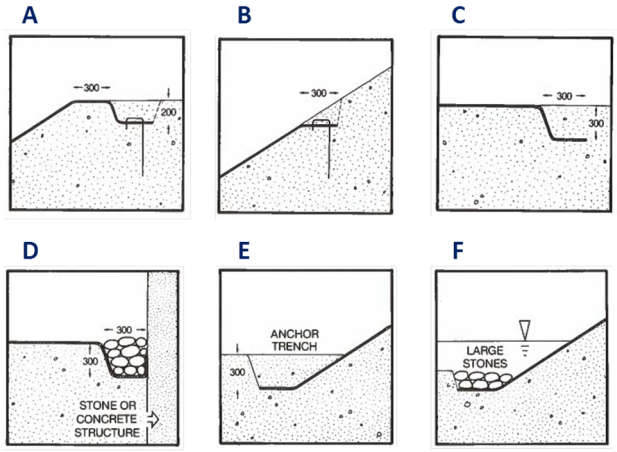

Fig. 14: Alternative trenching options

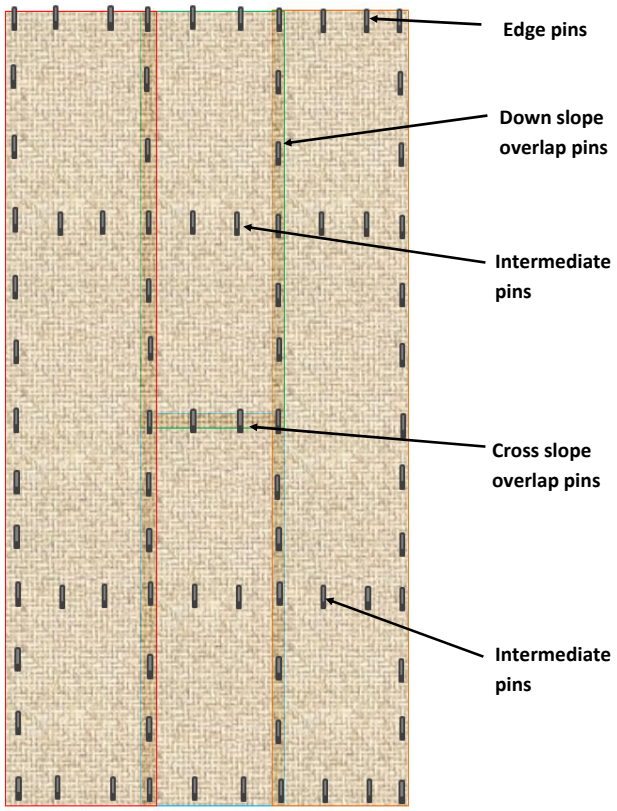

Fig. 15: Pinning arrangements

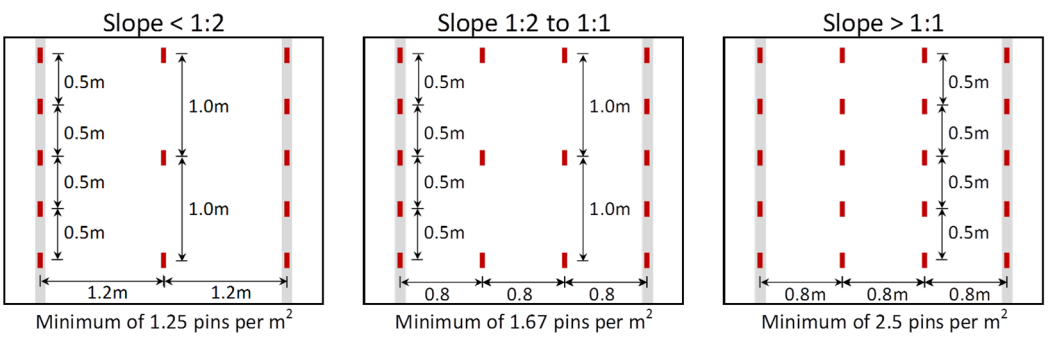

Fig. 16: General Guide to Erosamat intermediate pinning frequency

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