**Flow rate**

<table>
<thead>
<tr>
<th>Velocity **</th>
<th>Grasscrete Type</th>
<th>Reinforcement</th>
<th>Typical Weight *&lt;br&gt;(kg/m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>≤ 4.5m/sec</td>
<td>GC3 : 76mm Thick</td>
<td>BS4483 A193 - 200x200x7mmØ</td>
<td>135 Kg/m²</td>
</tr>
<tr>
<td>≤ 6.0m/sec</td>
<td>GC1 : 100mm Thick</td>
<td>BS4483 A193 - 200x200x7mmØ</td>
<td>180 Kg/m²</td>
</tr>
<tr>
<td>≤ 9.0m/sec</td>
<td>GC2 : 150mm Thick</td>
<td>BS4483 A252 - 200x200x8mmØ</td>
<td>270 Kg/m²</td>
</tr>
</tbody>
</table>

*This figure is indicative only and may be influenced by local material characteristics.*

**The selection of grass species should take account of water flow during periods of impounding where the grass should be of a type that will be flattened by the flow. This helps to form a smoother surface over the concrete and can reduce the Manning's 'n' value to as low as 0.03, bringing benefit to the overall dimensions of application such as drainage channels.**

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**Plan: Void former - upper surface**

![Grasscrete 600 x 600mm styrene void former (GC3 Shown)](image-url)

Scale 1:10
Hollows in prepared surface to be filled with material similar to sub-grade

20mm coarse sand layer

20 to 5mm gravel infill

Geotextile* to appropriate flow rate with fine dusting of sand to prevent damage during subsequent hot works.

Gradient **

1 in 1 - Extreme application, rope access by specialists.
1 in 1½ - Access using lanyards.
1 in 2 - Access with safety harness.
1 in >2 - General access possible.
1 in 3 - Amenity access available.

Notes:
* To achieve skin friction for placement of sand dust layer over Grasscrete void formers, we recommend that geotextiles with a smooth low-grip surface are avoided.

** As the gradient increases, the surface of the Grasscrete will naturally become more textured with the lowering of the concrete slump. This helps to increase the surface slip resistance.
For traffic applications the structural design of Grasscrete assumes an allowable ground bearing of 45 kN/m². For typical sub-grades the following guidelines can be considered for sub-base depth:

- CBR 4½%+ 150mm Thick
- CBR 2 - 4% 250 - 200mm Thick
- CBR <2% 300mm + Thick min.

In this application, we show the geotextile below the sub-base. Where the installation is to a fast flowing channel bed, we would recommend this be positioned above the sub-base for slope armouring.

The standard expansion joint detail is a 25mm wide pre-sawed wood filler. No sealant is incorporated with this detail. Where filler material such as PE foam is used, a 20mm wide joint should be specified with a 20x20mm sealant to maintain the filler in position and avoid dust and due impregnation.

Non-woven geotextile (Terram 1000 or similar approved)
Notes:

* Geotextile dug into sub-grade at head of slope to bisect potential surface runners from ground to rear.

** For design of toe consider:
1. Rate of water flow if any.
2. Compatence of sub-grade.
3. Water migration.
4. Large toe beams will need to be cast separately to avoid creating a pressure head during pouring.
Typical Flood Bund Detail
Scale 1:50

- GC2, 150mm thick
- GC3* or GC1*, 76mm thick
- GC3* or GC2*, 200mm thick
- Earth Bund

Drainage blanket: Typically 1 in 80 crossfall consisting of low fines granular material overlaying a geotextile membrane.

Toe beam as slope details

* System type determined by wave and flow data.

See drawing GC-CAD-0018

Flooding Source

See drawing GC-CAD-0018