GrassConcrete

CAD

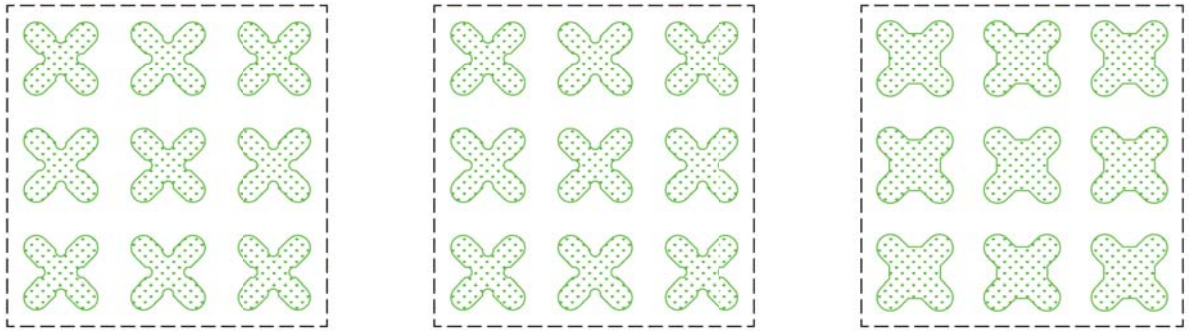
Water Environment Details

Flow rate

Velocity **	Grasscrete Type	Reinforcement	Typical Weight * (with Soil)
≤ 4.5m/sec	GC3 : 76mm Thick	BS4483 A193 - 200x200x7mmØ	135 Kg/m²
≤ 6.0m/sec	GC1 : 100mm Thick	BS4483 A193 - 200x200x7mmØ	180 Kg/m²
≤ 9.0m/sec	GC2 : 150mm Thick	BS4483 A252 - 200x200x8mmØ	270 Kg/m²
* 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 Mannings 'n' value to as low as 0.03, bringing benefit to the overall dimensions of application such as drainage channels.

Plan: Void former - upper surface



GC3 GC1 GC2

Scale 1:10

Grasscrete 600 x 600mm styrene void former
(GC3 Shown)

GrassConcrete

grass concrete Ltd.
Duncan House
142 Thornes Lane
Thornes
Wakefield
WF2 7RE
England
Tel: +44 (0) 1924 379443
Fax: +44 (0) 1924 290289
info@grasscrete.com
www.grasscrete.com

Client	N/A
Client Address	
Site Details	N/A
Site Address	
Revision History	
Drawn By	D Moorhouse
Date	27.01.2011
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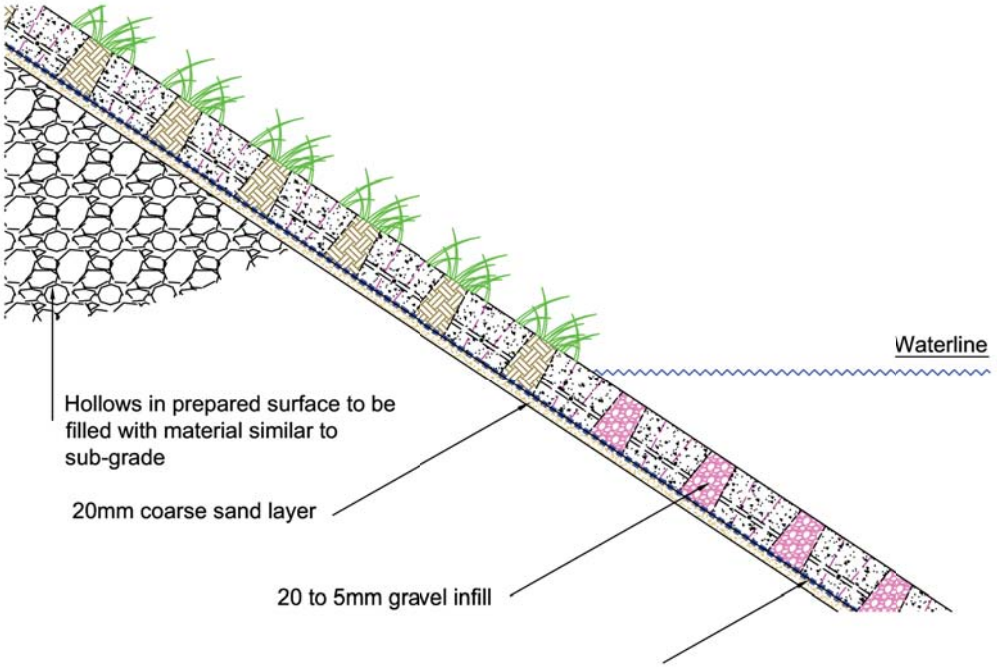
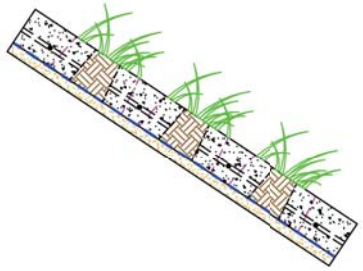
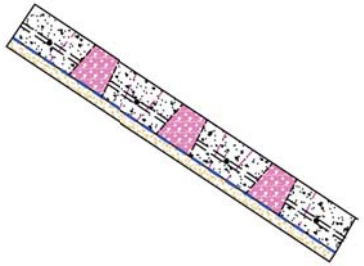
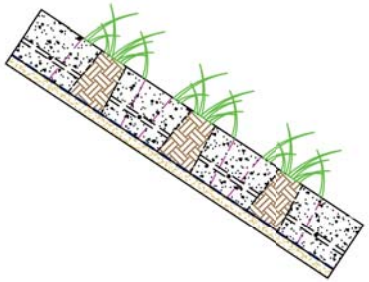
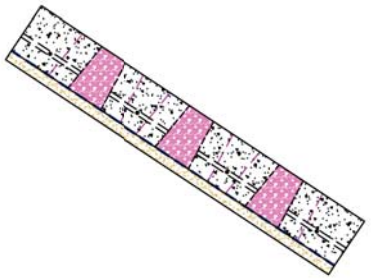
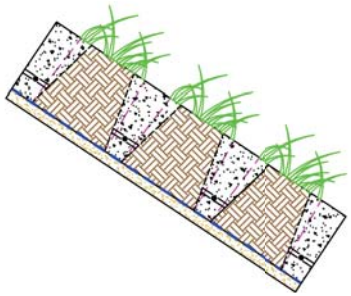
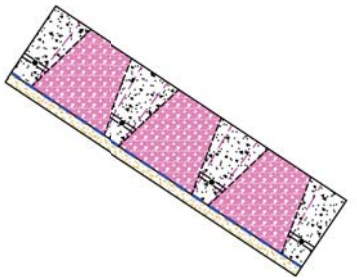
Scale	As Shown @ A3
Project Reference	
Project Title	Typical Grasscrete Water Environment Details - Criteria
Drawing Number	GC-CAD-0014
Revision	-



	Paving above waterline	Paving below waterline
GC3		
GC1		
GC2		

Gradient **

1 in 1	- Extreme application, rope access by specialists.
1 in 1½	- Access using lanyards.
1 in 2	- Access with care.
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.

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Wakefield
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England
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Fax: +44 (0) 1924 290289
info@grasscrete.com
www.grasscrete.com

Client: N/A

Client Address

Site Details: N/A

Site Address

Revision History

Drawn By	D Moorhouse
Date	21.01.2011
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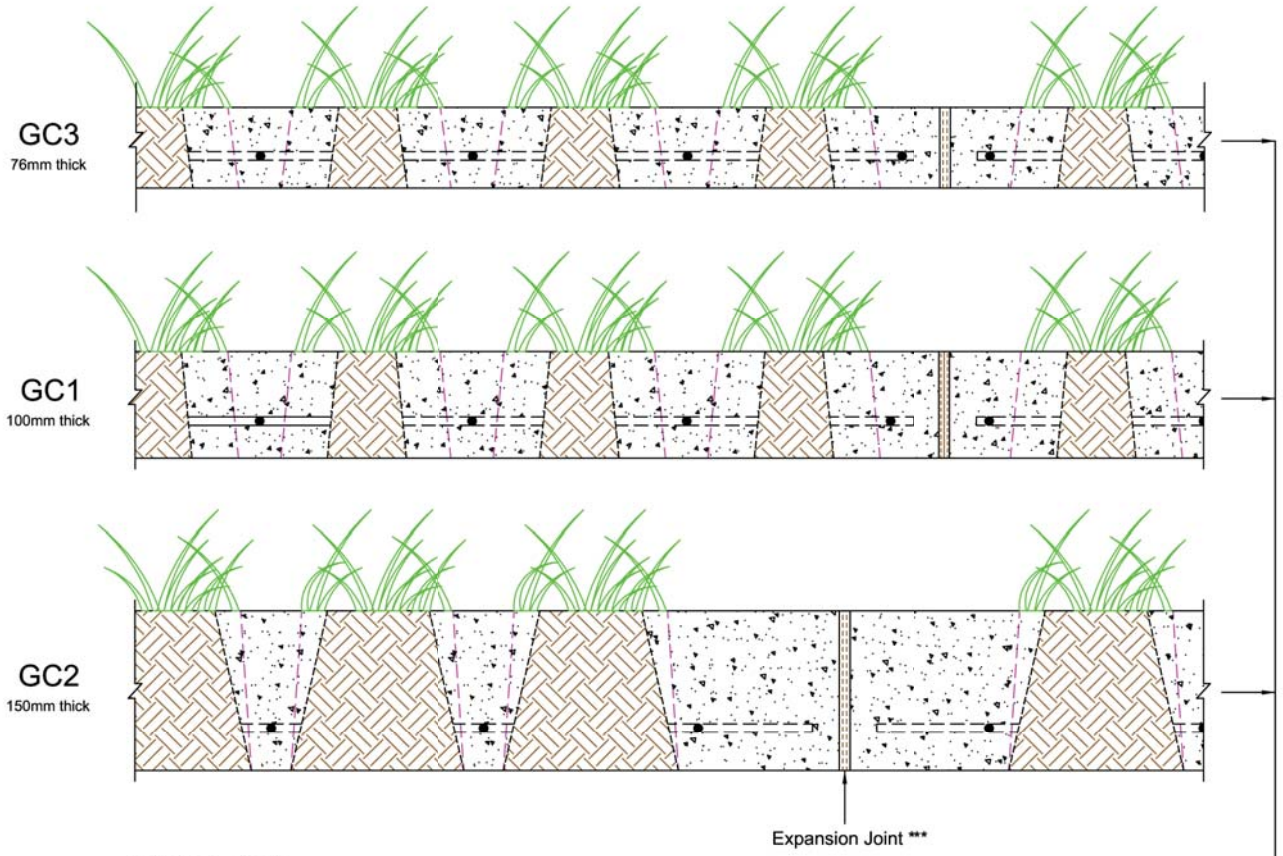
Scale	1 : 10 @ A3
Project Reference	
Project Title	Typical Grasscrete Water Environment Details - Slope Design
Drawing Number	GC-CAD-0015
Revision	-

Paving



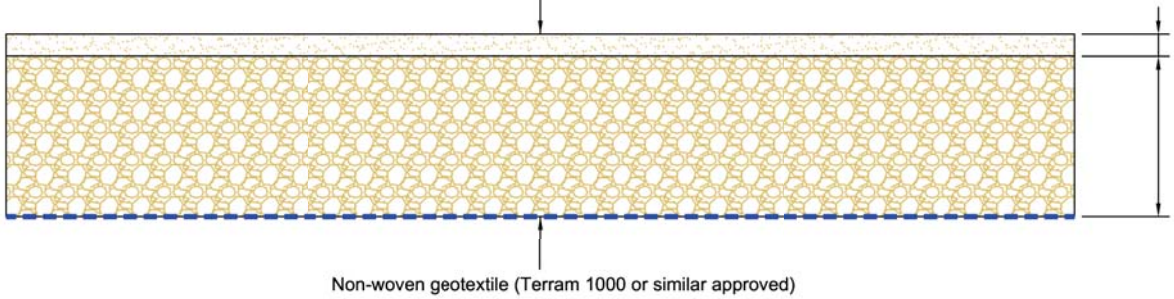
* For traffic applications the structural design of Grasscrete assumes an allowable ground bearing of 45 kN/m². For typical sub-grades the following guidlines can be considered for sub-base depth:

CBR 4%+	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-soaked softwood 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.

Preparation



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Client	N/A
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Revision History	
Drawn By	D Moorhouse
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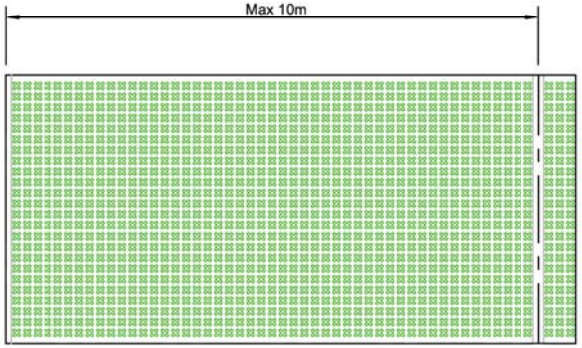
Project Reference	
Project Title	Typical Grasscrete Water Environment Details - Trafficked Slabs
Drawing Number	GC-CAD-0016
Revision	-

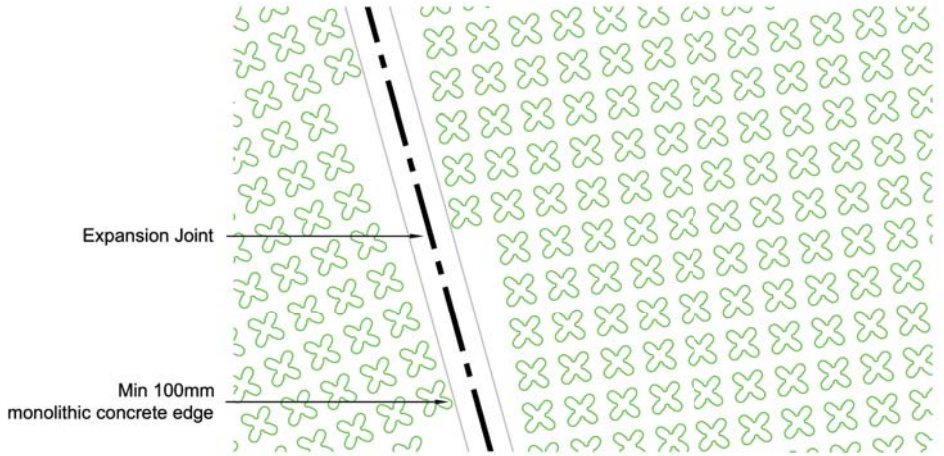
Layout to curve

Scale 1:100



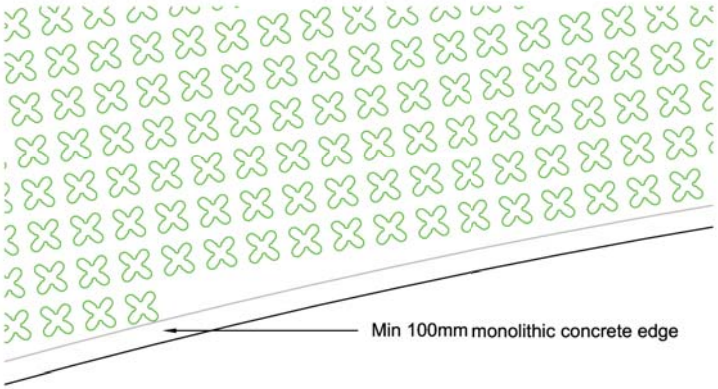
Layout to straight

Scale 1:100



Detail 1

Scale 1:25



Detail 2

Scale 1:25

grass concrete Ltd.
Duncan House
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Thornes
Wakefield
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Drawn By	D Moorhouse
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Project Title	Typical Grasscrete Water Environment Details - Slope Layouts
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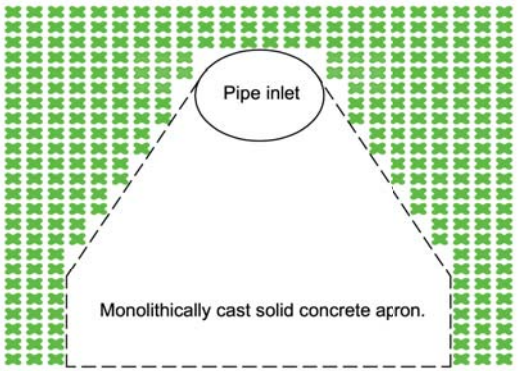
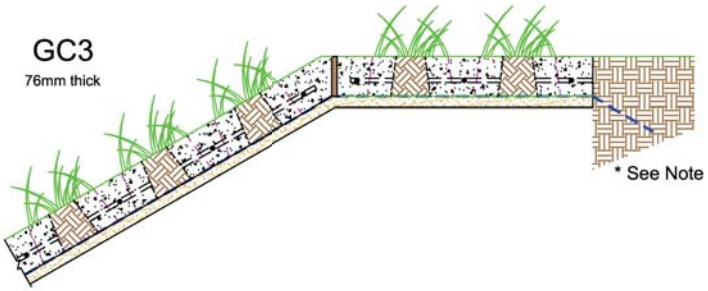


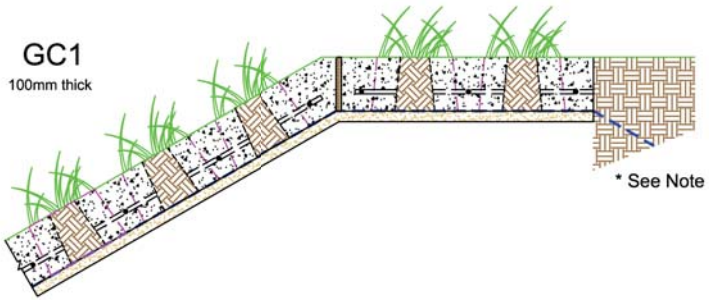
Inlet Detail
Scale 1:50

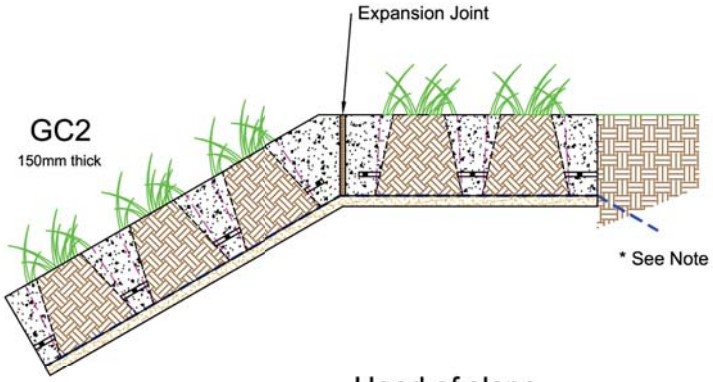
Notes:

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

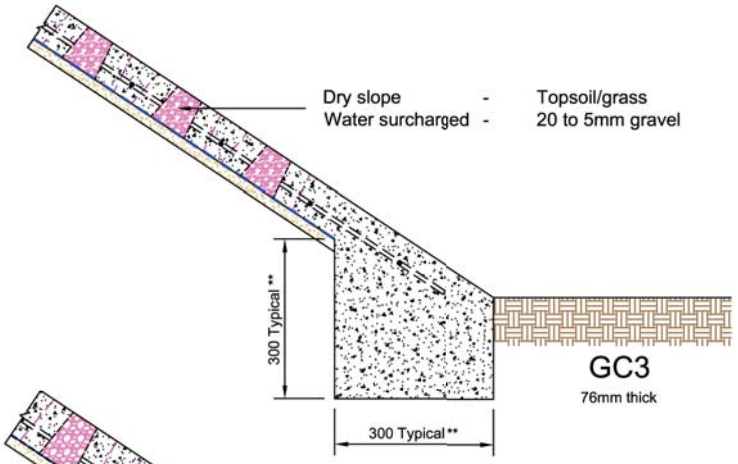
** For design of toe consider:
1. Rate of water flow if any.
2. Competance of sub-grade.
3. Water migration.
4. Large toe beams will need to be cast separately to avoid creating a pressure head during pouring.

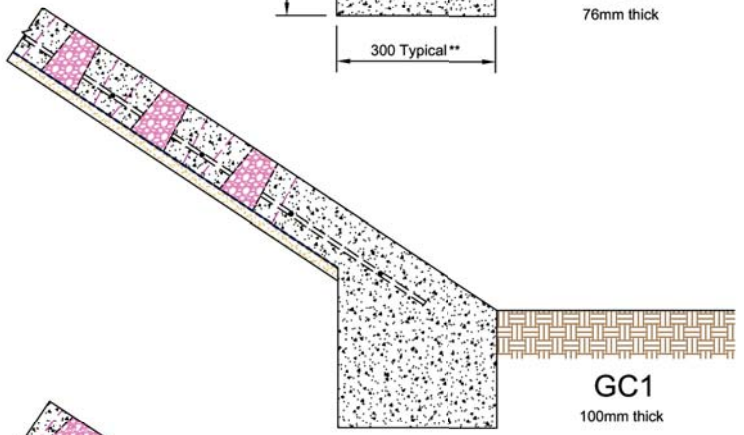


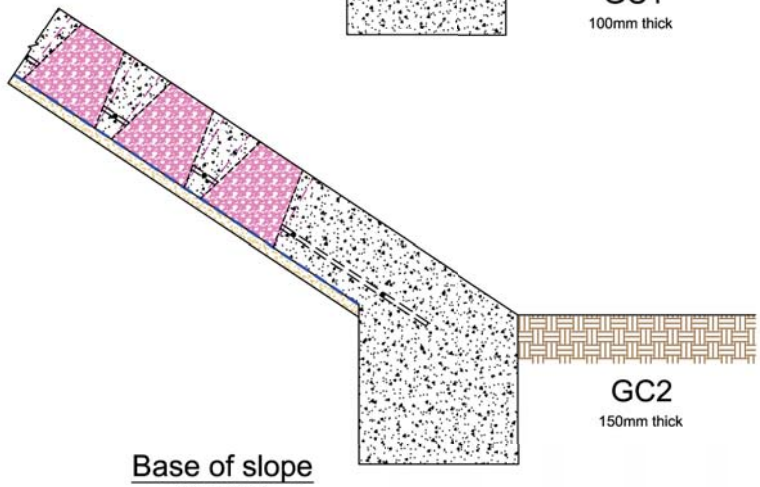




Head of slope
Scale 1:10







Base of slope
Scale 1:10

grass concrete Ltd.
Duncan House
142 Thornes Lane
Thornes
Wakefield
WF2 7RE
England
Tel: +44 (0) 1924 379443
Fax: +44 (0) 1924 290289
info@grasscrete.com
www.grasscrete.com

GrassConcrete

Client	N/A
Client Address	
Site Details	N/A
Site Address	
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Drawn By	D Moorhouse
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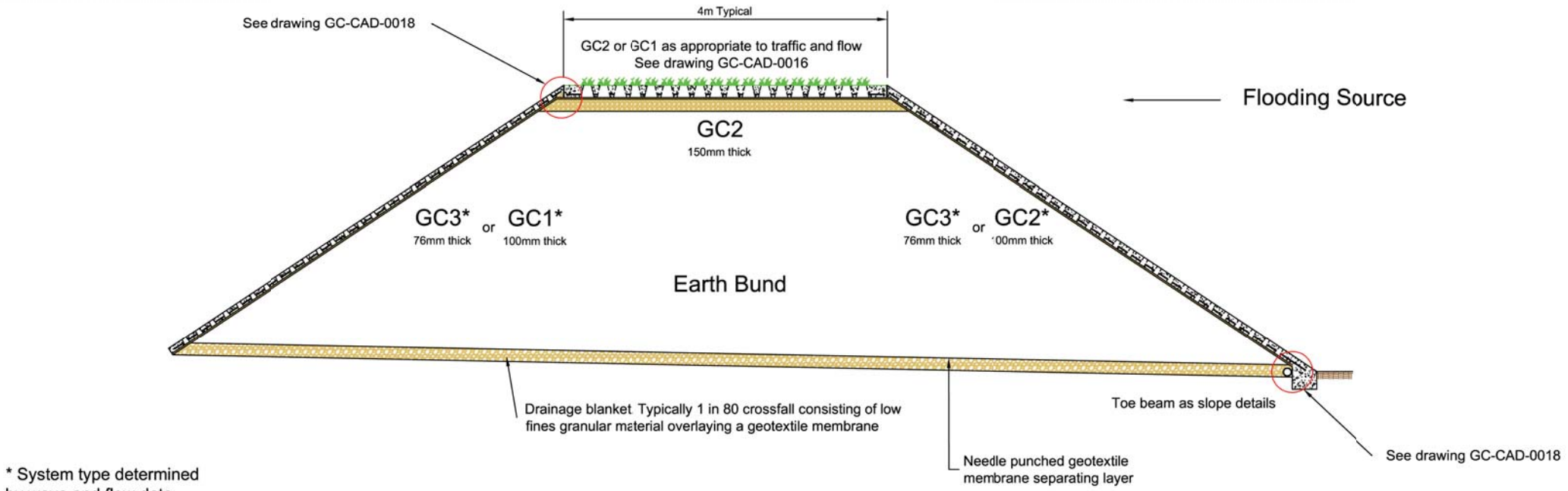

* System type determined by wave and flow data.

Typical Flood Bund Detail

Scale 1:50

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grass concrete Ltd.
Duncan House
142 Thornes Lane
Thornes
Wakefield
WF2 7RE
England
Tel: +44 (0) 1924 379443
Fax: +44 (0) 1924 290289
info@grasscrete.com
www.grasscrete.com

Client	N/A
Client Address	
Site Details	N/A
Site Address	
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