

Client: Curtins

Project: Pendle View
TensarTech GreenSlope System

For Feasibility

Objective: 1.4m high. 70 deg TensarTech GreenSlope System

Tensar
Structural Systems

**TensarTech
GreenSlopeSystem**



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Method of analysis

The calculation method used to create this Tensar software output is the tie-back wedge reinforced soil retaining wall design method with partial factors defined in Section 6.0 of BS 8006-1:2010 "Code of practice for strengthened/reinforced soils and other fills".

Reference TY17095

Date 16 Aug 2017

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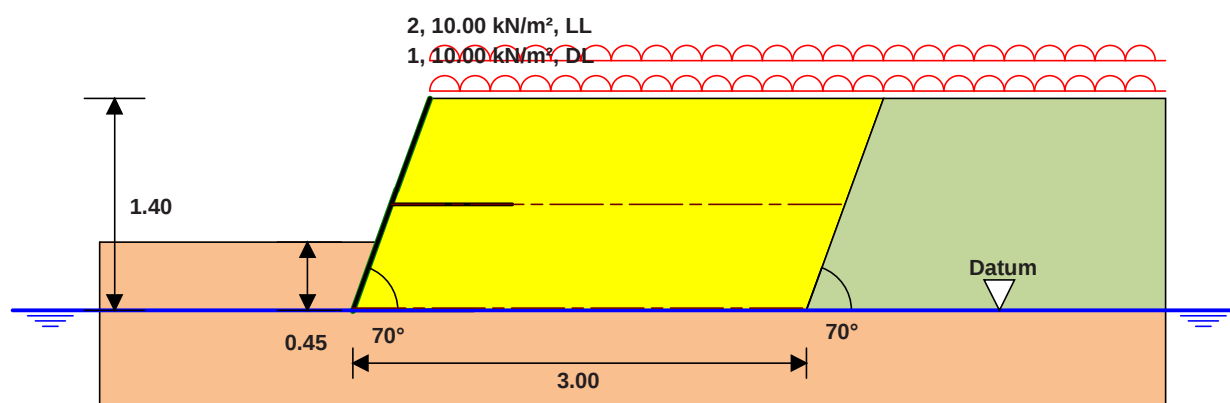
Design analysis
prepared by

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Input data and Section

Project: Pendle View



Tensar Structural Systems **TensarTech GreenSlope System**

Static loading case

All dimensions in metres

Scale 1:50

Fill/foundation properties

Design soil strength parameters are peak values

Soil zone	Drained/ undrained	c_k (kN/m ²)	ϕ_k (°)	$\gamma_{bulk,k}$ (kN/m ³)
Reinforced fill	Drained	0.0	36.0	19.0
Retained fill	Drained	0.0	36.0	19.0
Foundation soil	Drained	0.0	30.0	20.0

Soil strength values are characteristic values, design values are obtained by applying appropriate partial material factors

Surcharges

No	Load acts from x (m)	To x (m)	Load (kN/m ²)	Temporary/Permanent
1	0.00	100.00	10	Permanent
2	0.00	100.00	10	Temporary

x values are measured from the top of the reinforced fill block.

Unit loads given above are characteristic values, design values are obtained by applying appropriate partial load factors to the resulting actions.

Water pressure data	Location	Height of water level above datum (m)	r_u
	In front of structure	0.00	NA
	Within fill	0.00	

Verificaton of external stability	Mechanism	Result	Max/Min	Critical case	OK?
	Eccentricity	EQU = 0.0 m	1.0 m max	A	OK
	Sliding on base	3.200	1.3 min	B	OK
	Bearing	3.89, A	1.35 min		OK

Verification of internal stability	Mechanism	OK?	Mechanism	OK?
	Rupture check	OK	Adherence check	OK
	Internal sliding check	OK	Wedge check	OK
	Post-construction strain (wedges)	< 1.0%	Post-construction strain (stresses)	< 1.0%

Reinforcement layout Starting and finishing levels are related to datum	Tensar Geogrid	No of layers	Starting level (m)	Vertical spacing (m)	Finishing level (m)	Coverage (%)	f_b
	Type 2	1	0.70	-	-	100	0.85
	Type 2	1	0.00	-	-	100	0.85

Partial load factors applied to actions and materials As given in Tables 11 and 12 of BS 8006-1:2010	Partial factors for load combination		A	B	C
	Mass of reinforced soil body	f_{fs}	1.5	1.0	1.0
	Mass of backfill on top of the reinforced soil wall	f_{fs}	1.5	1.0	1.0
	Earth pressure behind the structure	f_{fs}	1.5	1.5	1.0
	Traffic load above reinforced soil wall	f_q	1.5	0	0
	Traffic load behind reinforced soil wall	f_q	1.5	1.5	0
	Material factor applied to $\tan\phi'$	f_{ms}	1.0	1.0	1.0
	Material factor applied to c'	f_{ms}	1.6	1.6	1.0
	Material factor applied to s_u	f_{ms}	1.0	1.0	1.0
	Sliding across surface of reinforcement	f_s	1.3	1.3	1.0
	Pullout resistance of reinforcement	f_p	1.3	1.3	1.0
	Partial factor applied to bearing capacity	f_{ms}	1.35	1.35	NA
	Partial factor applied to sliding on base	f_s	1.2	1.2	NA

Partial factor As given in Table 9 of BS 8006-1:2010	Partial factor depending on ramification of failure		f_n
	Applied to reinforcement rupture strength and pullout		1.1

**Further
information
relevant to
this
Tensar
Earth
Retention
System**

Further information, specifications and bill of quantities descriptions for this TensarTechEarth Retaining Structure are given in the following documents which form part of this Design Analysis

System overview
Installation guide
Case histories
Construction Animation Link

The current versions of these documents may be found by following the website link to "Tensar Documentation" in the Help menu of the TensarSoil® program

For program users who do not have a link to the internet contact your nearest Tensar representative or distributor

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