A INEXTENSIBLE SYSTEMS

Reinforced Earth System

1. "RE HAS" reinforcing strips, tie strips and coupling plates must be manufactured from carbon steel to AS 3679 or ASTM A572M and hot-dip galvanized in accordance with AS/NZS 4680 with an average galvanized coating thickness not less than 85 μm. Minimum steel thickness must be 4 mm.

2. Bolt, nut and washer sets must be manufactured from carbon steel to AS 1110, AS 1112 and AS 1237 respectively and must be hot-dip galvanized in accordance with AS 1214. The minimum average zinc coating mass and thickness must be 375g per square metre and 52.5 microns respectively.

3. Calculate T^*_{dr} of Reinforced Earth System soil reinforcement from the guaranteed minimum yield strength of steel with a maximum material factor of 0.9. Deduct the sacrificial steel thickness in the calculation of T^*_{dr}. T^*_{dc} may be taken as equal to T^*_{dr}.

4. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 1.0 + 1.1\,[1 - (\sigma^*_{vj(avg)}/120)]$ for ribbed strips where $\sigma^*_{vj(avg)}$ is in kPa and $\sigma^*_{vj(avg)} \leq 120$ kPa. For $\sigma^*_{vj(avg)} > 120$ kPa, then $\mu_p = 1.0$.

   Maximum μ_{s1}, $\mu_{sb} = 0.9$.

5. Facing elements: Precast segmental reinforced concrete panels.

6. Connection to facing elements:

   Galvanized tie strips cast into facing elements with bolted connection to soil reinforcement.

7. For sites assessed as being of special aggressiveness, the durability of the reinforcement may be improved by applying a thermal sprayed 85% Zn and 15% Al alloy coating with a minimum thickness of 60 μm and a minimum coating adherence of 2.5 MPa (when tested in accordance with ISO 2063) to the RE has reinforcing strips.

   Assess the specific corrosion allowance for each site, but in no case assume it to be less than 0.4 mm on each alloy coated steel surface exposed to corrosion.

8. Design life = 100 years.

9. The RSW System Owner is Reinforced Earth Pty Ltd.

A INEXTENSIBLE SYSTEMS (CONT'D)

VSL Retained Earth System

1. VSL Types 1,2,3 and 6 reinforcing meshes (Drawing series 600-DRG-300-VSoL-M-2W8-315-SL Rev.D, 600-DRG-300-VSoL-M-2W8-315-DL2 Rev.D, 600-DRG-300-VSoL-M-2W8-315-DL3 Rev.D, and 600-DRG-300-VSoL-M-2W8-375-SL6 Rev.B), connector bars and clevis connectors must be manufactured from carbon steel to AS/NZS 4671 and hot-dip galvanized in accordance with AS/NZS 4680 with an average galvanized coating thickness not less than 85 µm. Steel bar diameter must be in the range of 6 mm to 8mm. Cross bars may be ductility class L.

2. Bolt, nut and washer sets must be manufactured from carbon steel to AS 1110, AS 1112 and AS 1237 respectively and must be hot-dip galvanized in accordance with AS 1214. The minimum average zinc coating mass and thickness must be 375g per square metre and 52.5 microns respectively.

3. Deduct the sacrificial steel allowances in the calculation of the long term cross sectional area. Calculate T^*_{dr} of VSL Retained Earth System soil reinforcement from the guaranteed minimum yield strength of steel with a maximum material factor of 0.9 and the long term cross sectional area. T^*_{dc} may be taken as equal to T^*_{dr}.

4. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = \dfrac{A_c d}{2\tan(\phi_1)s}$

   Maximum μ_{s1}, $\mu_{sb} = 0.9$

   where $A_c = 30 - 15\,(z_j/6)$ for $z_j \le 6$ m

   $A_c = 15$ for $z_j > 6$ m

   d = diameter of cross bars (m) after deduction of sacrificial steel thickness

   s = cross bar spacing in m

5. Minimum number of crossbars outside failure surfaces must be 2.

6. Minimum spacing of cross bars must be 0.3 m.

7. Facing elements:

   - Precast segmental reinforced concrete panels, thickness 140mm minimum. Types 1, 2, 3 and 6 may be used as soil reinforcement.
   - Precast full height reinforced concrete panels, thickness 150mm minimum, height less than 10m. Only Type 6 reinforcing meshes may be used as soil reinforcement.
   - Must be designed in accordance with AS 5100, in conjunction with the soil pressures and reinforcement loads prescribed in Specification TfNSW R57. Steel reinforcements of ductility class L may be used in precast segmental facing panels, provided that the capacity reduction factor ϕ is reduced to 0.65.
   - Precast full height facing panels must be supported by temporary props during construction. Temporary props must be designed in accordance with AS 5100.

8. Connection to facing elements:

   - Precast segmental reinforced concrete panels: Galvanized clevis connector R150 (Drawing 600-DRG-300-VSoL-C-RC-R150-A and V17009-DRG-VSL-0308-A).

VSL Retained Earth System (continued)

- Precast full height reinforced concrete panels: Galvanized clevis connector R160 (Drawing 600-DRG-300-VSoL-C-RC-R160-A and V17009-DRG-VSL-0308-A).

9. Design life = 100 years.

10. The RSW System Owner is VSL Australia Pty Ltd.

A INEXTENSIBLE SYSTEMS (CONT'D)

TerraMid System

1. TerraMid ladder soil reinforcement and connector pins must be manufactured from carbon steel to AS/NZS 4671 and following manufacture hot-dip galvanised in accordance with AS/NZS 4680 with an average galvanized coating thickness not less than 85 µm. Minimum steel diameter must be 4 mm. All loops and cross bars must be electric resistance welded in accordance with AS/NZS 4671.

2. Provisions related to durability and protection of the system at distances greater than 1 km from the coast must be as set out below. In the following tables, the coating is assumed to fully protect the steel for a given finite period, after which the given corrosion rate must apply for the remainder of the design life of the structure.

   Exposed conditions may be assumed if, between the structure and the shoreline, one or other of the following applies:

   The terrain is Category 1 or 2; or

   The shielding multiplier $M_s > 1$ and the terrain multiplier $M_t > 1$;

   in accordance with Section 4 of AS 1170.2;

   Sheltered conditions may be assumed if, between the structure and the shoreline, one or other of the following applies:

   There is at least 2 km of Terrain Category 3 or 1 km of Terrain Category 4 or an equivalent pro-rata combination of both; or

   There is a "local topographic zone" and, at the site, the terrain multiplier $M_t = 1$;

   in accordance with Section 4 of AS 1170.2.

   Assume exposed conditions otherwise.

3. The coating life and corrosion rate for various exposure conditions must be as set out in Tables I and II below.

TABLE I - Galvanised steel only

Conditions	Exposed		Sheltered	
Distance from shoreline	> 1 km ≤ 10 km	> 10 km	> 1 km ≤ 3 km	> 3 km
Coating life (years)	10	15	10	15
Corrosion Rate (µm/face/year)	25	20	25	20

TABLE II - All connection pins and the first metre (approximately) of all reinforcement ladders are coated with a coating conforming to GZLP-C of AS/NZS 2312

Conditions	Exposed		Sheltered	
Distance from shoreline	> 1 km ≤ 10 km	> 10 km	> 1 km ≤ 3 km	> 3 km
Coating life (years)	20	30	20	30
Corrosion Rate (µm/face/year)	25	20	25	20

A INEXTENSIBLE SYSTEMS (CONT'D)

TerraMid System (continued)

Submit any other protection system proposed as an alternative to those above for consideration and approval by the Principal.

For additional types of aggressive environments, adopt site specific precautions as approved by the Principal.

Do not use the TerraMid RSW System at locations:

(i) Less than 1 km from the shoreline of the ocean or enclosed major waterways e.g. Sydney Harbour, Pittwater.

(ii) Where any part of the RSW structure will be permanently submerged

(iii) Where any part of the RSW structure is located below the 1 year ARI flood level

For the purposes of this annexure, limit Sydney Harbour to the area east of the Sydney Harbour Bridge.

4. Calculate T^*_{dr} of TerraMid soil reinforcement from the minimum yield strength of steel with a maximum material factor of 0.9. The sacrificial steel thickness must be calculated from the corrosion rates set out in Paragraphs 2 and 3 and deducted in the calculation of T^*_{dr}. T^*_{dc} may be taken as equal to T^*_{dr}.

5. System dependent reinforcement/soil coefficient:

$$\text{Maximum } \mu_p = \frac{A_c d}{2\tan(\phi_1)s}$$

Maximum μ_{s1}, $\mu_{sb} = 0.9$

where $A_c = 30 - 15\,(z_j/6)$ for $z_j \le 6$ m

$A_c = 15$ for $z_j > 6$ m

d = diameter of cross bars (m) after deduction of sacrificial steel thickness

s = cross bar spacing in m

6. Minimum spacing of crossbars is 300 mm.

7. Locate at least 2 ladder crossbars outside the design failure surface.

8. The ultimate shear resistance of the connector pins must be greater than or equal to 0.5 times the tensile yield strength of the largest diameter longitudinal reinforcement bar.

9. Facing elements: Segmental TerraMid blocks.

10. Take ultimate frictional angle (λ_u) between TerraMid blocks as less than or equal to 23°. Take a_u as zero.

11. Design life = 100 years.

12. The RSW System Owner is Reinforced Earth Pty Ltd.

A INEXTENSIBLE SYSTEMS (CONT'D)

Keysteel System

1. Keystrip soil reinforcement, Keystrip connectors and Keystrip connection pins must be manufactured from carbon steel to AS/NZS 4671 and following manufacture hot-dip galvanised in accordance with AS/NZS 4680 with an average galvanized coating thickness not less than 85 µm. Minimum steel diameter is 8 mm. Carry out all welding in accordance with AS/NZS 4671.

2. Provisions related to durability and protection of the system at distances greater than 1 km from the coast are as set out below. In the following tables, the coating is assumed to fully protect the steel for a given finite period, after which the given corrosion rate must apply for the remainder of the design life of the structure.

   Exposed conditions may be assumed if, between the structure and the shoreline, one or other of the following applies:

   The terrain is Category 1 or 2; or

   The shielding multiplier $M_s > 1$ and the terrain multiplier $M_t > 1$;

   in accordance with Section 4 of AS 1170.2;

   Sheltered conditions may be assumed if, between the structure and the shoreline, one or other of the following applies:

   There is at least 2 km of Terrain Category 3 or 1 km of Terrain Category 4 or an equivalent pro-rata combination of both; or

   There is a "local topographic zone" and at the site the terrain multiplier $M_t = 1$;

   in accordance with Section 4 of AS 1170.2;

   Assume exposed conditions otherwise.

3. The coating life and corrosion rate for various exposure conditions must be as set out in Tables I and II below.

TABLE I - Galvanised steel only

Conditions	Exposed		Sheltered	
Distance from shoreline	> 1 km ≤ 10 km	> 10 km	> 1 km ≤ 3 km	> 3 km
Coating life (years)	10	15	10	15
Corrosion Rate (µm/face/year)	25	20	25	20

TABLE II - All connection pins and the first metre (approximately) of all reinforcement ladders are coated with a coating conforming to GZLP-C of AS/NZS 2312

Conditions	Exposed		Sheltered	
Distance from shoreline	> 1 km ≤ 10 km	> 10 km	> 1 km ≤ 3 km	> 3 km
Coating life (years)	20	30	20	30
Corrosion Rate (µm/face/year)	25	20	25	20

A INEXTENSIBLE SYSTEMS (CONT'D)

Keysteel System (continued)

Submit any other protection system proposed as an alternative to those above for consideration and approval by the Principal.

For additional types of aggressive environments, adopt site specific precautions as approved by the .

Do not use the Keysteel RSW System at locations:

(i) Less than 1 km from the shoreline of the ocean or enclosed major waterways e.g. Sydney Harbour, Pittwater.

(ii) Where any part of the RSW structure will be permanently submerged

(iii) Where any part of the RSW structure is located below the 1 year ARI flood level

For the purposes of this annexure, limit Sydney Harbour to the area east of the Sydney Harbour Bridge.

4. Calculate T^*_{dr} of Keystrip soil reinforcement from the minimum yield strength of steel with a maximum material factor of 0.9. The sacrificial steel thickness must be calculated from the corrosion rates set out in Paragraphs 2 and 3 and deducted in the calculation of T^*_{dr}. T^*_{dc} may be taken as equal to T^*_{dr}.

5. System dependent reinforcement/soil coefficient:

$$\text{Maximum } \mu_p = \frac{A_c d}{2\tan(\phi_1)s}$$

Maximum μ_{s1}, $\mu_{sb} = 0.9$

where $A_c = 30 - 15\,(z_j/6)$ for $z_j \le 6$ m

$A_c = 15$ for $z_j > 6$ m

d = diameter of cross bars (m) after deduction of sacrificial steel thickness

s = cross bar spacing in m

6. Minimum spacing of crossbars is 300 mm.

7. Locate at least 2 ladder crossbars outside the design failure surface.

8. The ultimate shear resistance of the connector pins must be greater than or equal to 0.5 times the tensile yield strength of the largest diameter longitudinal reinforcement bar.

9. Facing elements: Segmental Keystone Compac II blocks.

10. $a_u \le 7$ kN/m $\quad a'_u \le 5$ kN/m

$\lambda_u \le 23°$ $\quad \lambda'_u \le 17°$

11. Design life = 100 years.

12. The RSW System Owner is Austral Masonry Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

ACE-Vertica System

1. Maximum tensile strength of ACE geogrids, based on creep rupture considerations (T^*_{dr}) and post construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
GG40	4.8	4.8	4.8	3.9	3.9	3.9
GG60	6.7	6.7	6.7	5.5	5.5	5.5
GG80	8.6	8.6	8.6	7.0	7.0	7.0
GG100	11.0	11.0	11.0	9.0	9.0	9.0
GG120	11.7	11.7	11.7	9.6	9.6	9.6

Note:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T*dr at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$

   Maximum μ_{s1}, $\mu_{sb} = 0.6$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Vertica blocks.

4. Facing elements: Segmental Vertica blocks.

5. $a_{cs} \leq 10\%$ of tensile strength (ISO 10319) $\quad a'_{cs} \leq 8\%$ tensile strength (ISO 10319)

   $a_u \leq 1.5$ kN/m $\quad a'_u \leq 0.5$ kN/m

   $\lambda_{cs} \leq 35°$ $\quad \lambda'_{cs} \leq 35°$

   $\lambda_u \leq 45°$ $\quad \lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is Global Synthetics Pty Ltd and Global Synthetics Qld Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

ACE-Keystone Compac II System

1. Maximum tensile strength of ACE geogrids, based on creep rupture considerations (T^*_{dr}) and post construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
GG40	5.7	5.7	5.7	4.7	4.7	4.7
GG60	8.9	8.9	8.9	7.3	7.3	7.3
GG80	10.4	10.4	10.4	8.5	8.5	8.5
GG100	13.3	13.3	13.3	10.9	10.9	10.9
GG120	14.2	14.2	14.2	11.7	11.7	11.7

Note:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T*dr at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$

   Maximum $\mu_{s1}, \mu_{sb} = 0.6$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Keystone Compac II blocks.

4. Facing elements: Segmental Keystone Compac II blocks.

5. $a_{cs} \leq 15\%$ of tensile strength (ISO 10319) $a'_{cs} \leq 8\%$ tensile strength (ISO 10319)

   $a_u \leq 17$ kN/m $a'_u \leq 15$ kN/m

   $\lambda_{cs} \leq 35°$ $\lambda'_{cs} \leq 35°$

   $\lambda_u \leq 7°$ $\lambda'_u \leq 7°$

6. Design life = 100 years.

7. The RSW System Owner is Global Synthetics Pty Ltd and Global Synthetics Qld Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Fortrac-Allan Block System

1. Maximum tensile strength of Fortrac geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
35/20-20	7.9	-	11.9	6.4	-	9.6
55/30-20	12.4	-	18.7	10.1	-	15.1
80/30-20	15.1	-	22.6	12.2	-	18.3

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grade 55/30-20 and 80/30-20

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Allan blocks. The Fortrac-Allan Block system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Allan blocks.

5. $a_{cs} \leq$ 10% tensile strength [#] $\quad a'_{cs} \leq$ 5% tensile strength [#]

   [#] in accordance with ASTM D4595

   $a_u \leq 15$ kN/m $\quad a'_u \leq 14$ kN/m

   $\lambda_{cs} \leq 45°$ for grade 35/20-20
   $\leq 50°$ for grade 55/30-20 $\quad \lambda'_{cs} \leq \lambda_{cs}$
   $\leq 50°$ for grade 80/30-20

   $\lambda_u \leq 45° \quad \lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is C and M Brick Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

GeoMega System

1. Maximum tensile strength of GeoStrap5 straps, based on creep rupture consideration (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
50	12.1	6.9	8.3	8.9	6.9	8.3
65	15.7	8.8	10.6	11.5	8.8	10.6

Notes:

a) For short term horizontal impact type loadings e.g. impact loads on a traffic barrier and vehicle braking loads, the above values of T^*_{dr} may be multiplied by 1.2. Do not take seismic loads and wind loads as short term horizontal impact type loads.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8.

2. System dependent reinforcement/soil coefficient:

   a) For loadings which include short term horizontal impact type loadings:

      i) For reinforced fill materials for which less than 15 % of the material passes the 75 μm sieve and less than 50 % of the material passes the 6.7 mm sieve, μ_p must be not greater than the following:

      For $0 \le \sigma^*_{vj\,(avg)} \le 100$ kPa $\quad \mu_p = 0.9 + 0.5\,(1 - \sigma^*_{vj\,(avg)}/100)$

      For $\sigma^*_{vj\,(avg)} > 100$ kPa $\quad \mu_p = 0.9$

      ii) For other reinforced fill materials not complying with (a), μ_p must not be greater than 0.7.

   b) For loadings which do not include short term horizontal impact type loadings:

      i) For reinforced fill materials for which less than 15 % of the material passes the 75 μm sieve and less than 50 % of the material passes the 6.7 mm sieve, μ_p must be not greater than 0.9.

      ii) For other reinforced fill materials not complying with (a), μ_p must not be greater than 0.7.

3. Maximum μ_{s1}, $\mu_{sb} = 0.85$

4. Facing elements: Precast segmental reinforced concrete panels.

5. Connection to facing elements: Omega LDPE cast in connections or GeoCore Sleeve Connector.

6. Design life = 100 years.

7. The RSW System Owner is Reinforced Earth Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Vertica System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
3 XT	9.0	4.0	6.4	7.2	4.0	6.4
5 XT	13.0	5.8	9.3	10.4	5.8	9.3
8 XT	16.0	7.1	11.4	12.8	7.1	11.4
10 XT	19.0	8.5	13.5	15.2	8.5	13.5

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) T^*_{dr}.and T^*_{dc} of Miragrid 3XT to be reduced by 10% if the reinforced fill's D_{50} is larger than 10mm, where D_{50} is the equivalent sieve size in millimetres as interpolated from particle size distribution curve and through which 50% of the reinforced fill material passes.

c) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Vertica blocks.

4. Facing elements: Segmental Vertica blocks.

5. Maximum connection strength parameters and maximum shear capacity parameters must be as follows:

	a_{cs} (kN/m)	λ_{cs}	a'_{cs} (kN/m)	λ'_{cs}	a_u (kN/m)	λ_u	a'_u (kN/m)	λ'_u
3 XT	8	20°	7	20°	1.5	45°	0.5	25°
5 XT	9	30°	8	25°				
8 XT	10	35°	9	30°				
10 XT	15	40°	10	30°				

6. Design life = 100 years.

7. The RSW System Owner is Anchor Wall Systems Inc.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Anchor Diamond Pro Straight Face System

1. Maximum tensile strength of Miragrid (XT) geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc}		T^*_{dr}	T^*_{dc}	
		Soil reinforcement post-construction creep strain			Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
2 XT	5.0	2.3	3.6	4.1	2.3	3.6
3 XT	7.5	3.3	5.3	6.0	3.3	5.3
5 XT	9.7	4.3	6.9	7.8	4.3	6.9
8 XT	12.1	5.4	8.6	9.7	5.4	8.6
10 XT	14.7	6.6	10.5	11.9	6.6	10.5

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T*dr at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$ Maximum $\mu_{s1}, \mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Anchor Diamond Pro Straight Face blocks.

4. Facing elements: Segmental Anchor Diamond Pro Straight Face blocks.

5. $a_{cs} \leq 5$ kN/m $a'_{cs} \leq 5$ kN/m

   $a_u \leq 13$ kN/m $a'_u \leq 13$ kN/m

   $\lambda_{cs} \leq 35°$ $\lambda'_{cs} \leq 27°$

   $\lambda_u \leq 25°$ $\lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is Pioneer Building Products.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Rockwood Classic System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
3 XT[(b)]	8.2	3.7	5.9	6.6	3.7	5.9
5 XT	10.4	4.6	7.4	8.3	4.6	7.4
7 XT	11.8	5.3	8.5	9.5	5.3	8.5
8 XT	12.1	5.4	8.6	9.7	5.4	8.6

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) T^*_{dr} and T^*_{dc} of Miragrid 3XT to be reduced by 15% if the reinforced fill's D_{50} is larger than 10mm, where D_{50} is the equivalent sieve size in millimetres as interpolated from particle size distribution curve and through which 50% of the reinforced fill material passes.

c) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*dr at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Rockwood Classic blocks.

4. Facing elements: Segmental Rockwood Classic blocks.

5. $a_{cs} \leq 15\%$ tensile strength [#] $\quad a'_{cs} \leq 10\%$ tensile strength [#]

   [#] in accordance with ASTM D4595

   $a_u \leq 3$ kN/m $\quad a'_u \leq 2$ kN/m

   $\lambda_{cs} \leq 40°$ $\quad \lambda'_{cs} \leq 30°$

   $\lambda_u \leq 23°$ $\quad \lambda'_u \leq 17°$

6. Design life = 100 years.

7. The RSW System Owner is C & M Brick Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Rockwood-Fortrac Classic System

1. Maximum tensile strength of Fortrac geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

	At design temperature of 25°C			At design temperature of 35°C		
Product grade	**T^*_{dr}**	**T^*_{dc}**		**T^*_{dr}**	**T^*_{dc}**	
		Soil reinforcement post-construction creep strain			**Soil reinforcement post-construction creep strain**	
		< 0.5%	**< 1.0%**		**< 0.5%**	**< 1.0%**
35/20-20	5.7	-	8.5	4.6	-	6.9
55/30-20	8.9	-	13.4	7.2	-	10.8
80/30-20	13	-	19.5	10.5	-	15.8

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grade 55/30-20 and 80/30-20

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Rockwood Classic blocks. The Rockwood-Fortrac Classic system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Rockwood Classic blocks.

5. $a_{cs} \leq$ 10% tensile strength [#] $\quad a'_{cs} \leq$ 5% tensile strength [#]

   [#] in accordance with ASTM D4595

   $a_u \leq 3$ kN/m $\quad a'_u \leq 2$ kN/m

   λ_{cs} $\leq 30°$ for grade 35/20-20; $\leq 40°$ for grade 55/30-20; $\leq 50°$ for grade 80/30-20 $\quad \lambda'_{cs} \leq \lambda_{cs}$

   $\lambda_u \leq 23° \quad \lambda'_u \leq 17°$

6. Design life = 100 years.

7. The RSW System Owner is C and M Brick Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Tensar (RE geogrids) - Concrete Panel System

1. Maximum tensile strength of Tensar geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc}		T^*_{dr}	T^*_{dc}	
		Soil reinforcement post-construction creep strain			Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
RE40	12.7	6.2	10.2	11.4	4.9	8.5
RE55	17.1	8.8	13.8	15.3	7.2	11.9
RE80	23.6	13.3	20.2	21.1	11.3	17.9
RE120	41.3	21.2	31.2	37.0	18.4	28.4
RE160	48.0	28.1	40.9	43.0	24.6	37.4

2. System dependent reinforcement/soil coefficient:
   Maximum $\mu_p = 0.75$
   Maximum μ_{s1}, $\mu_{sb} = 1.0$
3. Connection to facing elements:
   As detailed in British Board of Agreement Certificate No 99/R109.
4. Facing elements: Precast full height reinforced concrete panels.
5. Bodkin type:
   40 x 6mm for Tensar RE40;
   80 x 8mm for Tensar RE55, RE80, RE120 and RE160.
6. Design life = 100 years.
7. The RSW System Owner is Geofabrics Australasia Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Loc-A-Bloc 400 series and 600 series System with Tensar RE geogrids

1. Maximum tensile strength of Tensar geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
RE40	11.4	5.2	8.5	10.2	4.1	7.2
RE55	14.6	7.4	11.6	13.1	6.0	10.0
RE80	19.5	11.2	16.9	17.5	9.5	15.0
RE120	27.9	17.8	26.2	25.0	15.5	23.8

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For Loc-A-Bloc walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Loc-A-Bloc modular blocks.

4. Facing elements: Segmental Loc-A-Bloc 400 series and 600 series blocks.

5. $a_{cs} \leq T^*_{dr}$ (35°C) $\quad a'_{cs} \leq T^*_{dc}$ (35°C)

   $a_u \leq$ in accordance with AS 5100 $\quad a'_u \leq$ in accordance with AS 5100

   $\lambda_{cs} \leq 0°$ $\quad \lambda'_{cs} \leq 0°$

   $\lambda_u \leq 0°$ $\quad \lambda'_u \leq 0°$

6. Geogrids must be wrapped around the Loc-A-Bloc facing unit transverse reinforcement bars and flipped back to the fill behind the facing units.

7. Design life = 100 years.

8. The RSW System Owner is Loc-A-Bloc Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Fortrac-Vertica Block System

1. Maximum tensile strength of Fortrac, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
35/20-20	5.7	-	8.5	4.6	-	6.9
55/30-20	8.9	-	13.4	7.2	-	10.8
80/30-20	13	-	19.5	10.5	-	15.8

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grades 55/30-20 and 80/30-20

   Maximum μ_{s1}, μ_{sb} $= 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Vertica blocks. The Fortrac-Vertica Block system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Vertica blocks.

5. $a_{cs} \leq 8$ kN/m $\quad a'_{cs} \leq 5$ kN/m

   $a_u \leq 1.5$ kN/m $\quad a'_u \leq 0.5$ kN/m

   λ_{cs} $\leq 10°$ for grade 35/20-20; $\leq 20°$ for grade 55/30-20; $\leq 30°$ for grade 80/30-20 $\quad \lambda'_{cs} \leq \lambda_{cs}$

   $\lambda_u \leq 45°$ $\quad \lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is Southern Geosynthetics Supplies Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Tensar RE geogrids-Westblock Fat Face RSW System

1. Maximum tensile strength of Tensar geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
RE40	12.7	6.2	10.2	11.4	4.9	8.5
RE55	15.9	8.8	13.8	14.3	7.2	11.9
RE80	18.4	13.3	20.2	16.5	11.3	17.9
RE120	24.9	21.2	31.2	22.3	18.4	28.4

Notes: Connection reduction factors are significant. This has been allowed for in the above Table.

2. System dependent reinforcement/soil coefficient:
   Maximum $\mu_p = 0.75$,
   Maximum μ_{s1}, $\mu_{sb} = 1.0$
3. Bodkin type:
   40 x 6mm for Tensar RE40
   80 x 8mm for Tensar RE55, RE80 and RE120
4. For Westblock Fat Face walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Westblock modular blocks.
5. Facing elements: Segmental Westblock Fat Face blocks.
6. $a_{cs} \leq 25$kN/m — $a'_{cs} \leq 15\%$ tensile strength (ISO 10319)
   $a_u \leq 3$ kN/m — $a'_u \leq 2$ kN/m
   $\lambda_{cs} \leq 23°$ for RE40
   $\lambda_{cs} \leq 36°$ for RE55
   $\lambda_{cs} \leq 41°$ for RE80
   $\lambda_{cs} \leq 45°$ for RE120
   — $\lambda'_{cs} \leq 20°$ for all grades
   $\lambda_u \leq 35°$ — $\lambda'_u \leq 21°$
7. Design life = 100 years.
8. The RSW System Owner is Geofabrics Australia Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Landmark-Fortrac System

1. Maximum tensile strength of Fortrac geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
35/20-20	9.9	-	14.9	8	-	12
55/30-20	15.6	-	23.3	12.6	-	18.9
80/30-20	22.6	-	33.9	18.3	-	27.5
110/30-20	31.1		46.7	25.2		37.8

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grade 55/30-20, 80/30-20 and 110/30-20

   Maximum $\mu_{s1}, \mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Landmark blocks. The Landmark-Fortrac RSW system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Landmark blocks.

5. $a_{cs} \le T^*_{dr}$ (35°C) $\quad a'_{cs} \le T^*_{dc}$ (35°C)

   $a_u \le 30$ kN/m $\quad a'_u \le 30$ kN/m

   $\lambda_{cs} \le 0°$ $\quad \lambda'_{cs} \le 0°$

   $\lambda_u \le 40°$ $\quad \lambda'_u \le 40°$

6. Design life = 100 years.

7. The RSW System Owner is Pioneer Building Products.

B EXTENSIBLE SYSTEMS (CONT'D)

Fortrac-Anchor Diamond Pro Straight Face System

1. Maximum tensile strength of Fortrac geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
35/20-20	5.5	-	8.3	4.5	-	6.7
55/30-20	8.5	-	12.8	6.9	-	10.3
80/30-20	10.6	-	15.8	8.5	-	12.8

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grades 55/30-20 and 80/30-20

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Anchor Diamond Pro Straight Face blocks. The Fortrac-Anchor Diamond Pro Straight Face RSW system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Anchor Diamond Pro Straight Face blocks.

5. $a_{cs} \leq 7$ kN/m $\quad$ $a'_{cs} \leq 5$ kN/m

   $a_u \leq 13$ kN/m $\quad$ $a'_u \leq 13$ kN/m

   $\lambda_{cs} \leq 10°$ for grade 35/20-20; $\leq 30°$ for grades 55/30-20 and 80/30-20 $\quad$ $\lambda'_{cs} \leq 10°$ for grade 35/20-20; $\leq 30°$ for grades 55/30-20 and 80/30-20

   $\lambda_u \leq 25°$ $\quad$ $\lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is Pioneer Building Products.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Allan Block Systems

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
5 XT	9.0	4.0	6.4	7.2	4.0	6.4
7 XT	14.1	6.3	10.1	11.3	6.3	10.1
8 XT	17.6	7.9	12.6	14.2	7.9	12.6
10 XT	17.6	7.9	12.6	14.2	7.9	12.6

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Allan Blocks (AB Vert, AB Three, AB Classic & AB Stones).

4. Facing elements: Segmental Allan blocks.

5. $a_{cs} \leq 10$ kN/m $\quad a'_{cs} \leq 8$ kN/m

   $a_u \leq 15$ kN/m $\quad a'_u \leq 14$ kN/m

   $\lambda_{cs} \leq 40°$ $\quad \lambda'_{cs} \leq 30°$

   $\lambda_u \leq 45°$ $\quad \lambda'_u \leq 25°$

6. Design life = 100 years.

7. The RSW System Owner is C & M Brick Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Keystone Compac II System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
3 XT[(b)]	10.7	4.8	7.6	8.6	4.8	7.6
5 XT	14.3	6.4	10.2	11.5	6.4	10.2
10 XT	14.5	6.5	10.3	11.6	6.5	10.3

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table. Connection damage for Miragrid 10XT is higher than that for the lighter grades of Miragrid XT.

b) T^*_{dr}.and T^*_{dc} of Miragrid Miragrid 3XT to be reduced by 10% if the reinforced fill's D_{50} is larger than 10mm, where D_{50} is the equivalent sieve size in millimetres as interpolated from particle size distribution curve and through which 50% of the reinforced fill material passes.

c) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Keystone Compac II blocks.

4. Facing elements: Segmental Keystone Compac II blocks.

5. $a_{cs} \leq 12$kN/m $\quad$ $a'_{cs} \leq 7$kN/m

   $a_u \leq 17$ kN/m $\quad$ $a'_u \leq 15$ kN/m

   $\lambda_{cs} \leq 40°$ $\quad$ $\lambda'_{cs} \leq 30°$

   $\lambda_u \leq 7°$ $\quad$ $\lambda'_u \leq 7°$

6. Design life = 100 years.

7. The RSW System Owner is Austral Masonry Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Fortrac-Keystone Compac II System

1. Maximum tensile strength of Fortrac geogrids, based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
35/20-20	9.9	-	14.9	8.0	-	12.0
55/30-20	15.6	-	23.3	12.6	-	18.9
80/30-20	18.1	-	27.2	14.7	-	22.0

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.6$ for grade 35/20-20

   $= 0.75$ for grade 55/30-20 and 80/30-20

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Keystone Compac II blocks. The Fortrac-Keystone Compac II RSW system can only be used in structures where the allowable maximum reinforcement post-construction strains are more than 0.5%.

4. Facing elements: Segmental Keystone Compac II blocks.

5. $a_{cs} \leq 17$ kN/m $\quad a'_{cs} \leq 10$ kN/m

   $a_u \leq 17$ kN/m $\quad a'_u \leq 15$ kN/m

   $\lambda_{cs} \leq 12°$ for grade 35/20-20; $\leq 30°$ for grade 55/30-20 and 80/30-20 $\quad \lambda'_{cs} \leq 10°$ for grade 35/20-20; $\leq 25°$ for grade 55/30-20 and 80/30-20

   $\lambda_u \leq 7° \quad \lambda'_u \leq 7°$

6. Design life = 100 years.

7. The RSW System Owner is Southern Geosynthetics Supplies Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Landmark System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
3 XT	11.9	5.3	8.5	9.5	5.3	8.5
5 XT	18.4	8.2	13.1	14.8	8.2	13.1
8 XT	20.3	9.1	14.5	16.3	9.1	14.5
10 XT	20.3	9.1	14.5	16.3	9.1	14.5

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) T^*_{dr}.and T^*_{dc} of Miragrid 3XT and 5XT to be reduced by 20% and 25% respectively if the reinforced fill's D_{50} is larger than 10mm, where D_{50} is the equivalent sieve size in millimetres as interpolated from particle size distribution curve and through which 50% of the reinforced fill material passes.

c) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Landmark blocks.

4. Facing elements: Segmental Landmark blocks.

5. $a_{cs} \leq T^*_{dr}$ (35°C) $\quad a'_{cs} \leq T^*_{dc}$ (35°C)

   $a_u \leq 30$ kN/m $\quad a'_u \leq 30$ kN/m

   $\lambda_{cs} \leq 0°$ $\quad \lambda'_{cs} \leq 0°$

   $\lambda_u \leq 40°$ $\quad \lambda'_u \leq 40°$

6. Design life = 100 years.

7. The RSW System Owner is – Anchor Wall Systems Inc.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Cornerstone System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain		T^*_{dr}	T^*_{dc} Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
3 XT	11.9	5.3	8.5	9.5	5.3	8.5
5 XT	17.9	8.0	12.8	14.4	8.0	12.8
8 XT	24.4	10.9	17.5	19.6	10.9	17.5
10 XT	31.4	14.0	22.4	25.2	14.0	22.4

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) T^*_{dr}.and T^*_{dc} of Miragrid 3XT and 5XT to be reduced by 20% and 22% respectively if the reinforced fill's D_{50} is larger than 10mm, where D_{50} is the equivalent sieve size in millimetres as interpolated from particle size distribution curve and through which 50% of the reinforced fill material passes.

c) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Cornerstone blocks.

4. Facing elements: Segmental Cornerstone blocks.

5.

$a_{cs} \le T^*_{dr}$ (35°C)	$a'_{cs} \le T^*_{dc}$ (35°C) for 3XT, 5XT and 8XT
	$a'_{cs} \le 17.5$kN/m for 10XT
$\lambda_{cs} \le 0°$	$\lambda'_{cs} \le 0°$ for 3XT, 5XT and 8XT
	$\lambda'_{cs} \le 20°$ for 10XT
$a_u \le 30$ kN/m	$a'_u \le 30$ kN/m
$\lambda_u \le 40°$	$\lambda'_u \le 40°$

6. Design life = 100 years.

7. The RSW System Owner is – Austral Masonry Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

Miragrid (XT)-Magnumstone (Positive Connection) System

1. Maximum tensile strength of Miragrid (XT), based on creep rupture considerations (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} (kN/m)		T^*_{dr}	T^*_{dc} (kN/m)	
		Soil reinforcement post-construction creep strain			Soil reinforcement post-construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
5 XT	13.1	5.9	9.4	10.6	5.9	9.4
8 XT	18.8	8.4	13.4	15.1	8.4	13.4
10 XT	24.1	10.8	17.2	19.4	10.8	17.2

Notes:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8

c) T^*_{dr} and T^*_{dc} in the above Table are strength per m width of Magnumstone blocks' front face. Width of Miragrid (XT) geogrids wrapped around each Magnumstone blocks must be at least 600mm wide.

2. System dependent reinforcement/soil coefficient:

   Maximum $\mu_p = 0.75$

   Maximum μ_{s1}, $\mu_{sb} = 1.0$

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Magnumstone blocks.

4. Facing elements: Segmental Magnumstone (Positive Connection) blocks.

5.

$a_{cs} \le T^*_{dr}$ (35°C)	$a'_{cs} \le T^*_{dc}$ (35°C) for 5XT, 8XT and 10XT
$\lambda_{cs} \le 0°$	$\lambda'_{cs} = 0°$ for 5XT, 8XT and 10XT
$a_u \le 10$ kN/m	$a'_u \le 10$ kN/m
$\lambda_u \le 60°$	$\lambda'_u \le 60°$

6. Design life = 100 years.

7. The RSW System Owner is – Austral Masonry Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

ACE-Landmark System

1. Maximum tensile strength of ACE geogrids, based on creep rupture considerations (T^*_{dr}) and post construction creep strain (T^*_{dc}) considerations, must be as follows:

Product grade	At design temperature of 25°C			At design temperature of 35°C		
	T^*_{dr}	T^*_{dc} soil reinforcement post construction creep strain		T^*_{dr}	T^*_{dc} soil reinforcement post construction creep strain	
		< 0.5%	< 1.0%		< 0.5%	< 1.0%
GG100	15.9	15.9	15.9	13.0	13.0	13.0
GG150	21.4	21.4	21.4	17.6	17.6	17.6

Note:

a) Connection reduction factors are significant. This has been allowed for in the above Table.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T*dr at design temperature of 35°C by 0.8.

2. System dependent reinforcement/soil coefficient:

   Maximum μ_p = 0.6

   Maximum μ_{s1}, μ_{sb} = 0.6

3. For walls up to 9 m high with maximum 40 kPa surcharge with soil reinforcement embedded between Landmark blocks.

4. Facing elements: Segmental Landmark blocks.

5. $a_{cs} \leq T^*_{dr}$ (35°C) $\quad a'_{cs} \leq T^*_{dc}$ (35°C)

   $a_u \leq 10$ kN/m $\quad a'_u \leq 10$ kN/m

   $\lambda_{cs} \leq 0°$ $\quad \lambda'_{cs} \leq 0°$

   $\lambda_u \leq 40°$ $\quad \lambda'_u \leq 40°$

5. Maximum design life = 100 years.

6. The RSW System Owner is – Global Synthetics Pty. Ltd. and Global Synthetics Qld. Pty. Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

VSoL Polymeric Type P

1. 1. Maximum tensile strength of Paraweb straps, based on creep rupture consideration (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

	At design temperature of 25°C			At design temperature of 35°C		
Product grade	**T^*_{dr}**	**T^*_{dc}**		**T^*_{dr}**	**T^*_{dc}**	
		Soil reinforcement post-construction creep strain			**Soil reinforcement post-construction creep strain**	
		< 0.5%	**< 1.0%**		**< 0.5%**	**< 1.0%**
30	14.4	-	6.1	10.4	-	4.8
50	24.0	-	10.1	17.4	-	8.0
75	36.0	-	15.2	26.1	-	12.0

Notes:

a) For short term horizontal impact type loadings e.g. impact loads on a traffic barrier and vehicle braking loads, the above values of T^*_{dr} may be multiplied by 1.2. Do not take seismic loads and wind loads as short term horizontal impact type loads.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8.

2. System dependent reinforcement/soil coefficient:
   Maximum μ_p = 0.7
   Maximum μ_{s1}, μ_{sb} = 0.85
3. Facing elements: Precast segmental reinforced concrete panels.
4. Connection to facing elements: Loops & Toggles or Embedded Beam.
5. Design life = 100 years.
6. The RSW System Owner is VSL Australia Pty Ltd.

B EXTENSIBLE SYSTEMS (CONT'D)

VSoL Polymeric Type B

1. 1. Maximum tensile strength of Paraweb straps, based on creep rupture consideration (T^*_{dr}) and post-construction creep strain (T^*_{dc}) considerations, must be as follows:

	At design temperature of 25°C			At design temperature of 35°C		
Product grade	**T^*_{dr}**	**T^*_{dc}**		**T^*_{dr}**	**T^*_{dc}**	
		Soil reinforcement post-construction creep strain			**Soil reinforcement post-construction creep strain**	
		< 0.5%	**< 1.0%**		**< 0.5%**	**< 1.0%**
30	8.1	6.2	8.1	5.9	4.9	5.9
50	13.6	10.4	13.6	9.9	8.1	9.9
75	20.4	15.5	20.4	14.8	12.2	14.8

Notes:

a) For short term horizontal impact type loadings e.g. impact loads on a traffic barrier and vehicle braking loads, the above values of T^*_{dr} may be multiplied by 1.2. Do not take seismic loads and wind loads as short term horizontal impact type loads.

b) Where reinforcement in the RSW is in reinforced fill that is permanently saturated, multiply the above values of T^*_{dr} at design temperature of 35 °C by 0.8.

2. System dependent reinforcement/soil coefficient:
   Maximum μ_p = 0.7
   Maximum μ_{s1}, μ_{sb} = 0.85
3. Facing elements: Precast segmental reinforced concrete panels.
4. Connection to facing elements: Loops & Toggles or Embedded Beam.
5. Design life = 100 years.
6. The RSW System Owner is VSL Australia Pty Ltd.