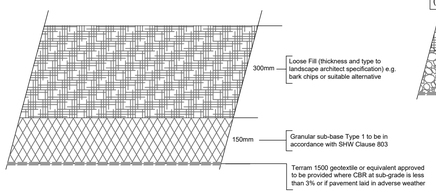
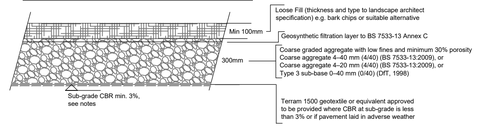
External Build-up Details

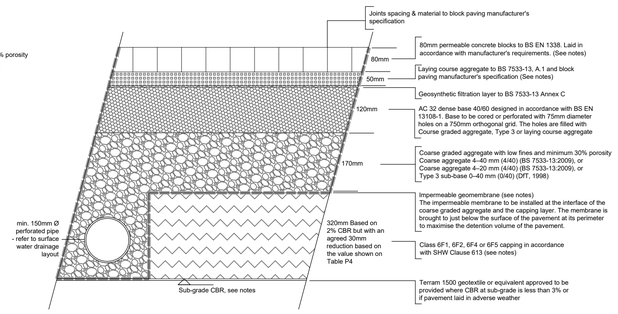
LOOSE FILL PLAY AREA WITH MOT TYPE 1 SUB-BASE [PEDESTRIAN ONLY]
(SCALE 1:10)



LOOSE FILL PLAY AREA WITH PERMEABLE SUB-BASE [PEDESTRIAN ONLY]
(SCALE 1:10)



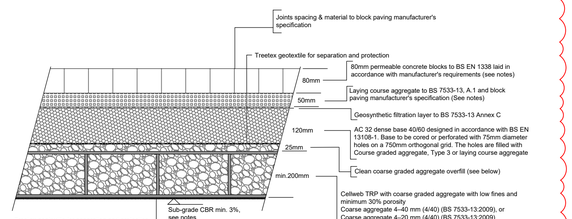
PERMEABLE CONCRETE BLOCK CAR PARK AISLE CONSTRUCTION
Unofficial Category 6
[SYSTEM C no infiltration; up to 0.15 msa or 10 HGV/week]
(SCALE 1:10) BS 7533-13:2009 COMPLIANT



TREE ROOT PROTECTION
PERMEABLE CONCRETE BLOCK CAR PARK AISLE CONSTRUCTION
Unofficial Category 4
[light duty, occasional heavy vehicle use]
(SCALE 1:10) CELLWEB DESIGN GUIDE COMPLIANT

WHAT THIS DETAIL IS FOR
'NO-DIG' TREE ROOT PROTECTION AREAS, WHERE OCCASIONAL OVERRUN BY HGVS IS POSSIBLE (I.E. AS MIGHT OCCUR TWO OR THREE TIMES IN A YEAR BY DELIVERY VEHICLES OR FIRE TENDER)

NOTE REQUIREMENT FOR 3% CBR OF EXISTING GROUND AT BASE OF PROPOSED CELLWEB GRID.



1.Additional sub-base may be required if CBR at sub-grade is less than 3%. The contractor is responsible for undertaking CBR tests at shown depth and any subsequent in-situ tests to demonstrate validity of equilibrium testing.

2. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thinness should be made.

3. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

4. Warranty for proprietary surface courses and cellweb is to be provided by the manufacturers & not Hexa.

5. A block manufacturer may recommend a reduced block depth or specific laying course material grading/product suitable for the application. In this instance, the proposed detail to be reviewed by the engineer.

6. Proposed geosynthetic build-up depth and specification to be reviewed and validated by a manufacturer and arboroculturist consultant.

TURFMESH [for light maintenance and emergency vehicles & CBR of Formation equal or greater than 2.5%]
(SCALE 1:10)

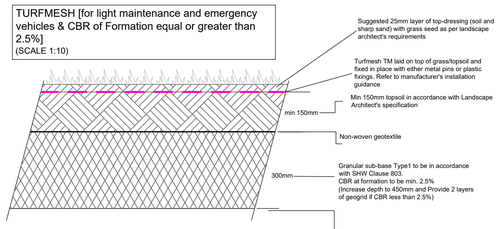


Table P4: Permeable Sub-base + Capping Thickness	
Sub-grade CBR	Permeable sub-base + capping (mm)
<2%	Sub-grade improvement required
2%	350
3%	250
4%	200
≥ 5%	150

1. Capping layer depth depends upon equilibrium CBR testing of sub-grade (the contractor is responsible for undertaking these tests and any subsequent in-situ tests to demonstrate validity of equilibrium testing). Capping depths to be in accordance with Table P4.

2. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thickness should be made unless previous testing can be proved to be invalid.

3. Where the sub-grade CBR is below 2% it should be improved or replaced prior to construction of the foundation. All soft spots to be removed prior to construction.

4. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

5. Impermeable membrane to be confirmed by manufacturer as suitable for drainage purposes and should be:
a. manufactured from a durable, robust material which can withstand the additional loads applied during construction and throughout the full design life of the pavement;
b. resistant to puncture, multi-axial stresses and strains associated with movement and environmental stress cracking;
c. unaffected by potential pollutants such as alkaline or acidic ground water;
d. installed with fully watertight joints and discharge outlets.

It is recommended that welded joints are tested to ensure the integrity of the system and provide a more robust jointing method.

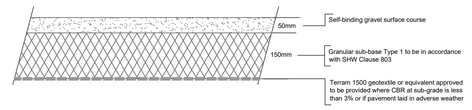
6. Any impermeable membrane should be installed and treated with care to ensure that it is not damaged during construction.

7. Consideration should also be given to protecting membranes with geotextile fleeces where leakage could have particularly severe consequences.

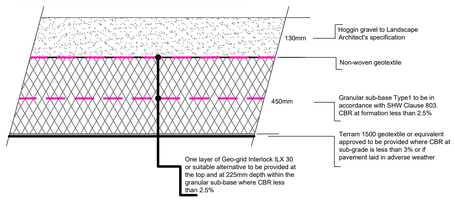
8. Warranty for proprietary surface courses is to be provided by the manufacturer & not Hexa.

9. A block manufacturer may recommend a reduced block depth or specific laying course material grading/product suitable for the application.

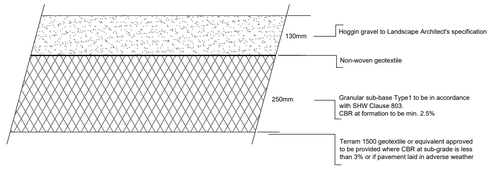
SELF-BINDING GRAVEL FOOTWAY CONSTRUCTION [PEDESTRIAN ONLY]
(SCALE 1:10)



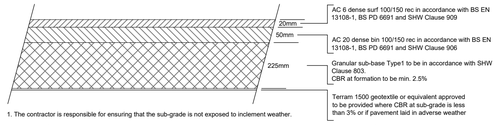
HOGGIN SERVICE ROAD
[for light maintenance and emergency vehicles & CBR of Formation less than 2.5%]
(SCALE 1:10)



HOGGIN SERVICE ROAD
[for light maintenance and emergency vehicles & CBR of Formation equal or greater than 2.5%]
(SCALE 1:10)



BITUMINOUS FOOTWAY/CYCLEWAY CONSTRUCTION
Unofficial Category 4
[light vehicle overrun, very occasional HGV access]
(SCALE 1:10) CD 239 - FOOTWAY AND CYCLEWAY PAVEMENT DESIGN COMPLIANT

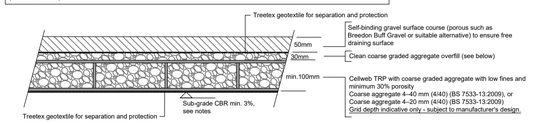


1. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

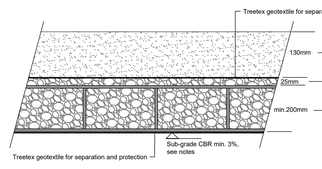
2. Where the CBR of the subgrade is less than 2.5% it shall be improved or replaced prior to construction of the foundation. All soft spots to be removed prior to construction.

3. Engineer to assess the frost susceptibility of the formation material. If the formation material is frost susceptible, then this material should be removed and replaced with non-frost susceptible material with a depth to suit the specific site requirements.

TREE ROOT PROTECTION
SELF-BINDING GRAVEL FOOTWAY CONSTRUCTION [PEDESTRIAN ONLY]
(SCALE 1:10)



TREE ROOT PROTECTION HOGGIN SERVICE ROAD CONSTRUCTION
[for light maintenance and emergency vehicles]
(SCALE 1:10)



1. Additional sub-base may be required if CBR at sub-grade is less than 3%. The contractor is responsible for undertaking CBR tests at shown depth and any subsequent in-situ tests to demonstrate validity of equilibrium testing.

2. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thickness should be made.

3. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

4. Warranty for proprietary surface courses and Cellweb grid is to be provided by the manufacturers & not Hexa.

5. Proposed geosynthetic build-up depth and specification to be reviewed and validated by a manufacturer and arboroculturist consultant.

CONCRETE BLOCK FOOTWAY/CYCLEWAY CONSTRUCTION
no vehicle overrun
(SCALE 1:10)

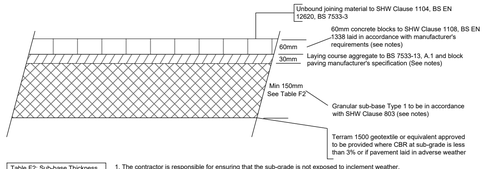


Table F2: Sub-base Thickness	
Sub-grade CBR	Sub-base (mm)
<2.5%	Subgrade improvement required
≥2.5%	200
≥5%	150

1. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

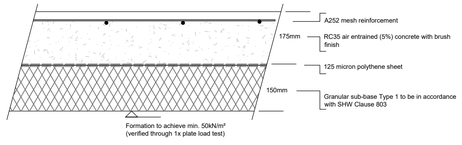
2. Warranty for proprietary surface courses is to be provided by the manufacturer & not Hexa.

3. Where the CBR of the subgrade is less than 2.5% it shall be improved or replaced prior to construction of the foundation. All soft spots to be removed prior to construction.

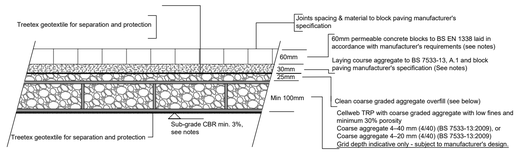
4. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thickness should be made, unless previous testing can be proved to be invalid.

3. Engineer to assess the frost susceptibility of the formation material. If the formation material is frost susceptible, then this material should be removed and replaced with a depth to suit the specific site requirements

IN-SITU CONCRETE SLAB CONSTRUCTION
(SCALE 1:10)



CONCRETE BLOCK FOOTWAY/CYCLEWAY CONSTRUCTION
no vehicle overrun
(SCALE 1:10)



1. Additional sub-base may be required if CBR at sub-grade is less than 3%. The contractor is responsible for undertaking CBR tests at shown depth and any subsequent in-situ tests to demonstrate validity of equilibrium testing.

2. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thickness should be made.

3. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

4. Warranty for proprietary surface courses and Cellweb grid is to be provided by the manufacturers & not Hexa.

5. Proposed geosynthetic build-up depth and specification to be reviewed and validated by a manufacturer and arboroculturist consultant.

PERMEABLE SELF-BINDING GRAVEL FOOTWAY WITH PERMEABLE SUB-BASE [PEDESTRIAN ONLY]
(SCALE 1:10)

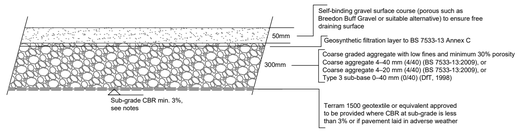


Table P4: Permeable Sub-base + Capping Thickness	
Sub-grade CBR	Permeable sub-base + capping (mm)
<2%	Sub-grade improvement required
2%	350
3%	250
4%	200
≥ 5%	150

1. Capping layer depth depends upon equilibrium CBR testing of sub-grade (the contractor is responsible for undertaking these tests and any subsequent in-situ tests to demonstrate validity of equilibrium testing). Capping depths to be in accordance with Table P4.

2. Where the CBR at time of construction is less than the design CBR, the lower value should be used and the pavement thickness increased. Where the found CBR is higher, no reduction in pavement thickness should be made unless previous testing can be proved to be invalid.

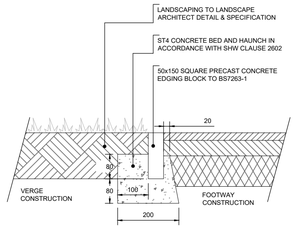
3. Where the sub-grade CBR is below 2% it should be improved or replaced prior to construction of the foundation. All soft spots to be removed prior to construction.

4. The contractor is responsible for ensuring that the sub-grade is not exposed to inclement weather.

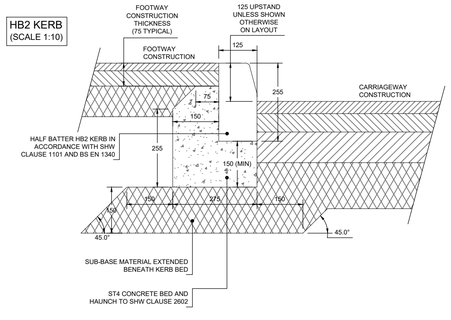
5. Warranty for proprietary surface courses is to be provided by the manufacturer & not Hexa.

Kerbing Details

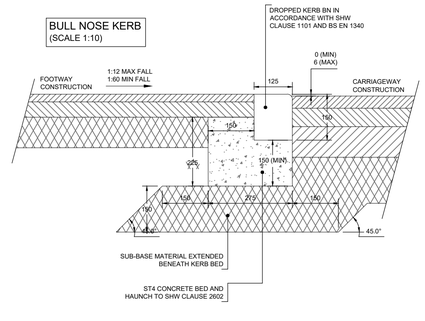
FOOTWAY EDGING [CONCRETE]
(SCALE 1:10)



HB2 KERB
(SCALE 1:10)



BULL NOSE KERB
(SCALE 1:10)



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Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in meters unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. This drawing should be printed and read in colour.

Design Notes

1. Suitability of proposed no-dig construction extent and surfacing materials to be reviewed by specialist prior to construction.
2. Design assumes a minimum CBR value of 5%. CBR testing to be undertaken at pavement formation prior to construction.

100mm SCALE 1:10

Rev	Date	Details of Issue	Drawn	R'wd
C08	20.01.26	Cellweb TRP unit size increased to 200mm for vehicle loading areas	KJ	ST
C07	17.12.25	Loose fill play area external works details added	KJ	ST
C06	15.10.25	Tarmac removed from beneath block paving in ped areas	ST	ST
C05	26.09.25	TurfMesh detail added	ST	ST
C04	02.09.25	Section removed and added to "9403"	KJ	ST
C03	15.07.25	Updates in clouded area	KJ	ST
C02	11.07.25	Updates in clouded area	KJ	ST
C01	07.07.25	Updated to suit drawing 9400 and 9401 Rev C01	KJ	ST
P04	07.02.25	Punctured base course layer in lieu of hydraulically bound CGA	ST	ST
P03	07.02.25	Retaining wall details added	ST	ST
P02	29.11.24	Stage 4 issue	EMC	AW
P01	26.07.24	First issue for review and comment.	HW	AB

Issues & Revisions

Consultant

HEXA

Client

HENRY BROTHERS

Project Title

TWYCROSS ZOO

Drawing Title

EXTERNAL WORKS CONSTRUCTION DETAILS

Drawn By	HW	Reviewed By	AB
Hexa Ref	600902	Scale at A1	1:10

Purpose of Issue: FOR CONSTRUCTION

Status: A

Project - Originator - Zone - Level - Type - Role - Number: TWZ-HEX-XX-XX-DR-C-9402

Revision: C08