NOTES.
Construction to be in accordance with Lincolnshire County Council's Development Road Specification.

Materials within 450mm finished road surface to be non frost susceptible.
Construction depths are based upon Construction Chart 1 in the Development Road Specification.

Design CBR of <1.5% to be used following site investigation.
Sub-base and Capping can be reduced to 620mm if all Type 1 material used.
Geotextile to be in accordance with Clause 6.7.1 in the Development Road Specification.

Geogrids, used for reinforcement of unbound aggregate in very weak ground when installed between the sub-base or capping layer and the sub-grade shall be handled and laid as described in this clause and shall comply with the following:-
(i) The Quality Control Strength of the geogrid, when tested in accordance with ISO 10319 and expressed as the lower 95% confidence limit in accordance with ISO 2602 – 1980 (BS 2846, Part 2, 1981), shall be 40kN/m with a peak strain of around 11% in both the longitudinal and transverse directions.
(ii) In addition, typically the loads at 2% and 5% strain shall be 14kN/m and 28kN/m respectively in both the longitudinal and transverse directions.
(iii) The ribs of the geogrid shall be of rectangular cross section in both the longitudinal and transverse directions with a nominal edge thickness of 1.35mm.The geogrid nominal aperture size shall be 30mm x 30mm. However, triangular aperture geogrids are available and these must be agreed with the Highway and Flood Authority before installation.
(iv) The geogrid shall be manufactured from polypropylene sheet, oriented in two directions so that the resulting ribs shall have a high degree of molecular orientation which continues through the area of the integral node.
(v) The geogrid shall be inert to all chemicals naturally found in soils and shall have no solvents at ambient temperature. It shall not be susceptible to hydrolysis, shall be resistant to aqueous solutions of salts, acids and alkalis and shall be non- biodegradable.
(vi) The geogrid shall have a minimum of 2% finely divided carbon black, as determined by BS 2782 Part 4, Method 452B: 1993, well dispersed in the polymer matrix to inhibit attack by ultra violet light.
(vii) The typical strength of the nodes between the longitudinal and transverse ribs, as determined by the Geosynthetics Research Institute, Drexel University, USA, Test Method GG2-87, shall be at least 90% of the Quality Control Strength in both longitudinal and transverse directions.
(viii) The geogrid shall be manufactured in accordance with the Quality Assurance requirements BS EN ISO 9001. If required by the Engineer, the Contractor shall provide evidence that the manufacturer's Quality Assurance System has been certified to conform to BS EN ISO 9001 by an external authenticating authority approved by the Department of Trade and Industry.

CONSTRUCTION CHART 1 – NON PERVIOUS

ROADS UP TO 0.25 msa. - NORMAL FLEXIBLE CONSTRUCTION

SUB-GRADE Note 1	SUB-BASE (mm)		SURFACING (mm)		TOTAL THICKNESS REQUIRED (mm)	
Design CBR	Without geotextile	With geotextile	Binder Course *Note 4*	Surface Course	Without geotextile	With geotextile
Below 1½% and soft spots	*Not suitable*	710 Notes 2 and 3	130	40	*Not suitable*	880 Notes 2,3 and 4
1½%	*Not suitable*	440	130	40	*Not suitable*	610 Note 4
2%	400	340	130	40	570 Note 5	510 Note 4
3%	310	300	130	40	480 Note 5	470 Note 4
4% Note 6	300	300 Note 6	130	40	470 Note 5	470 Notes 4 and 5
5% Note 6	300	300 Note 6	130	40	470 Note 5	470 Notes 4 and 5
6-15% Note 6	300	300 Note 6	130	40	470 Note 5	470 Notes 4 and 5
Above 15% Note 6	300	300 Note 6	130	40	470 Note 5	470 Notes 4and 5

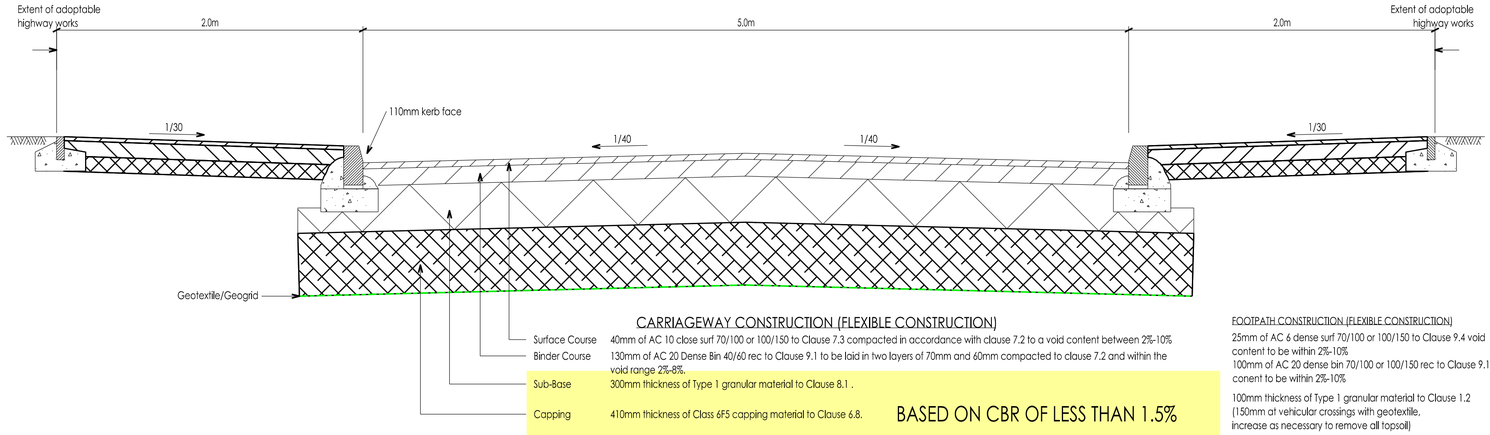
Note 1 See Clauses 1.1.6, 1.1.7 and 1.1.8

Note 2 See Clause 1.1.6 – Assumes no improvement is possible using either sub-soil drainage or soil strengthening technique. 710mm is 410mm of 6F5 Capping Layer Granular Fill to clause 6.8 and 300mm of Type 1 sub-base. The thickness of 710mm can be reduced to 620mm if all Type 1 sub-base is used.

Note 3 For soft spots and sub-grades with a CBR of less than 1½% the geotextile shall be laid with an approved geogrid or shall be an approved geocomposite. Approved specialist design can be used with the agreement of the Authority.

Note 4 Initial Binder Course layer thickness **70mm** if the **alternative kerbing installation method** (two stage construction – kerbing to be laid at a later stage) is used. **Total Binder Course thickness remains 130mm** in these circumstances. **See Clause 1.1.17.**

Note 5 The use of a geosynthetic with a sub-grade with this bearing capacity offers no advantage or economy.



CARRIAGEWAY CONSTRUCTION (FLEXIBLE CONSTRUCTION)

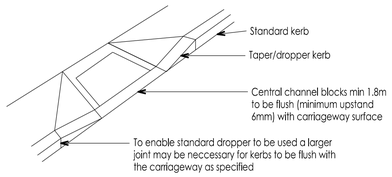
Surface Course	40mm of AC 10 close surf 70/100 or 100/150 to Clause 7.3 compacted in accordance with clause 7.2 to a void content between 2%-10%
Binder Course	130mm of AC 20 Dense Bin 40/60 rec to Clause 9.1 to be laid in two layers of 70mm and 60mm compacted to clause 7.2 and within the void range 2%-8%.
Sub-Base	300mm thickness of Type 1 granular material to Clause 8.1 .
Capping	410mm thickness of Class 6F5 capping material to Clause 6.8.
	Sub base and Capping construction depths to be as per Construction Chart 1.

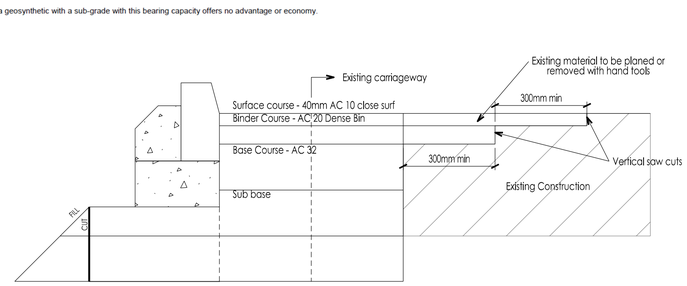
BASED ON CBR OF LESS THAN 1.5%

FOOTPATH CONSTRUCTION (FLEXIBLE CONSTRUCTION)

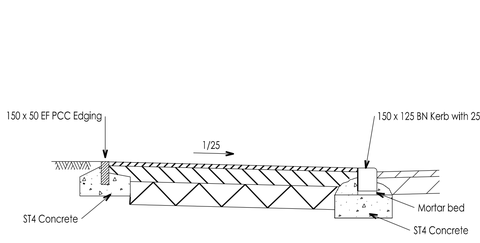
25mm of AC 6 dense surf 70/100 or 100/150 to Clause 9.4 void content to be within 2%-10%
100mm of AC 20 dense bin 70/100 or 100/150 rec to Clause 9.1 void conent to be within 2%-10%

100mm thickness of Type 1 granular material to Clause 1.2 (150mm at vehicular crossings with geotextile, increase as necessary to remove all topsoil)

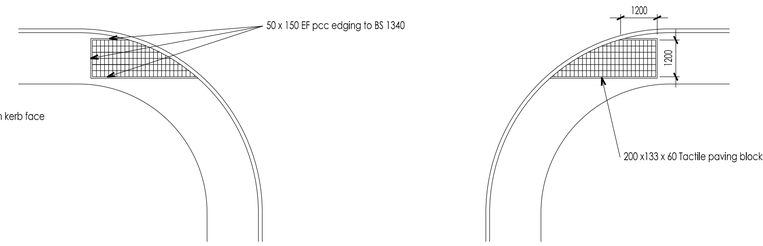




CONSTRUCTION ADJACENT EXISTING CARRIAGEWAY



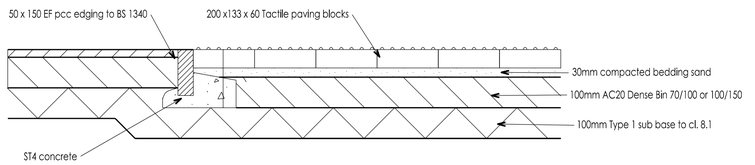
SECTION THROUGH VEHICULAR ACCESS



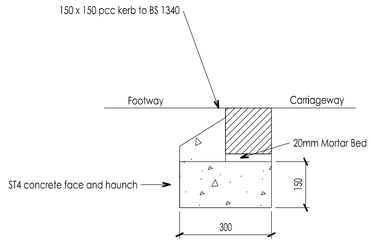
TYPICAL UNCONTROLLED CROSSING AT JUNCTION



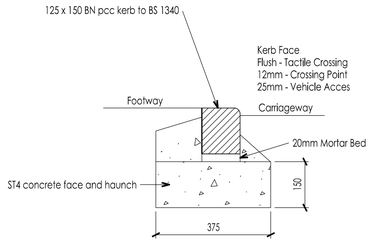
DETAIL OF KERBING AT VEHICULAR ACCESS



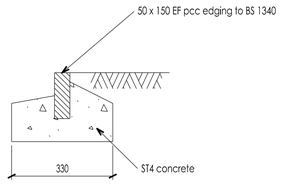
TACTILE PAVING DETAIL



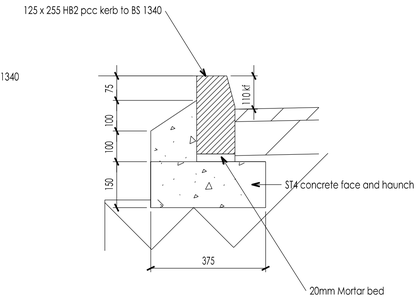
150 x 150 CB channel



125 x 150 BN pcc kerb



50 x 150 EF pcc edging



125 x 255 HB2 pcc kerb

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Contractors must verify all dimensions, levels and co-ordinates at the site before commencing any work or making any shop drawings; no dimensions to be taken from drawing.

1) "The specification in all respects shall be in accordance with the current Lincolnshire Development Road and Sustainable Drainage Design Guide"and "Development Road and Sustainable Drainage Specification and Construction" publications in force in the county at the time of construction.

2) The minimum longitudinal fall for highways, without channel blocks shall be 1 in 150, and with channel blocks 1 in 250 (see Clause 10.1).

3) In addition, ensure that the first section of any side road falls away from the road to which it is connecting. If general topography requires it to rise, this change of direction should take place after the first set of gullies. This is to ensure a 'false channel' with associated drainage problems is not created in the bellmouth of junctions.

4) "General deterioration of the existing highway/footway/verges created through construction of the new Section 38 Development will be reinstated to the current Development Road Specification at the developers' own cost at the agreement of the inspecting Highway and Flood Authority Officer".

5) "No Private surface water shall discharge onto the adoptable highway"

6) "No private, structural features shall overhang the adoptable highway".

7) "No private retaining walls exceeding 1.37m shall be within 3.66m of the highway boundary".

ALL WORKS TO BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF LINCOLNSHIRE COUNTY COUNCILS DEVELOPMENT ROAD AND SUSTAINABLE DRAINAGE DESIGN GUIDE AND DEVELOPMENT ROAD AND SUSTAINABLE DRAINAGE SPECIFICATION AND CONSTRUCTION.

Rev	Description	Drn	Vf'd	Date
C	Issued for Construction following S38 Technical Approval.	CM	AG	03/07/19
B	HB2 Kerb detail amended to 20mm mortar bed	JW	CM	02/19
A	Amended detail for CB channel.	CM	AG	02/19
-	Issued for S38 Approval	CM	AG	12/18

As outlined in section 2.3 of the CITB Industry Guidance to Designers, insignificant risks can usually be ignored, as can risks arising from routine construction activities, unless the design compounds or significantly alters these risks. In accordance with CDM Regulations 8, 9 and 11, any significant risks relating to the design features shown on this drawing have been identified and are annotated thus: D

☒ No significant risks have been identified.

☐ Significant risks have been identified - refer to notes on drawing for information on residual risks and any control measures to be employed.

Refer to the current Designer's Risk Assessment sheets for further details.

Designer's Signature CM | Date 12/18

Drawing Status
CONSTRUCTION ISSUE

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Project
RESIDENTIAL DEVELOPMENT
SMALL DROVE
WESTON
SPALDING

Client
SOUTH HOLLAND DISTRICT COUNCIL

Title
S38 CONSTRUCTION DETAILS

Drawn	Date	Scale	
CM	DECEMBER 2018	NTS	@ A1
Discipline	Project Number	Drawing Number	Revision
CIVILS	11505	(9)07	C