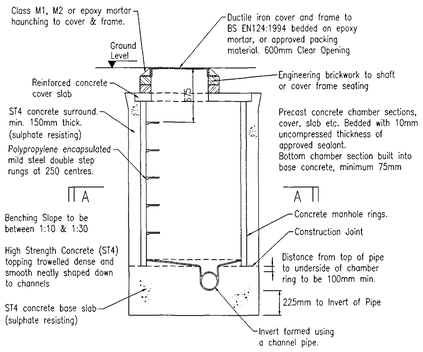
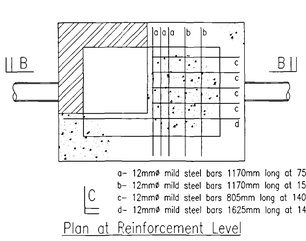
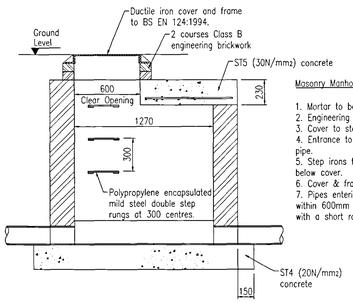
DETAILS ON THIS DRAWING ARE COPYRIGHT OF SIDEBOTTOM RICHARDSON CHENG LIMITED.THIS IS A CONFIDENTIAL DOCUMENT AND MUST NOT BE COPIED, USED OR DIVULGED IN ANY WAY WITHOUT PRIOR WRITTEN CONSENT



Typical Manhole Detail



Plan at Reinforcement Level

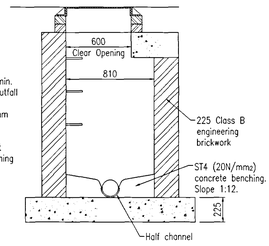


Section B-B

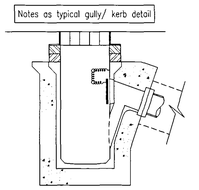
Masonry Manhole Notes

1. Mortar to be 1:3(cement/ sand)
2. Engineering bricks to be Class B to BS 3921.
3. Cover to steel rebar in cover slab to be 45mm min.
4. Entrance to manhole to be max. distance from outfall pipe.
5. Step irons to BS 1247 when invert exceeds 900mm below cover.
6. Cover & frame to BS EN124:1994 uncoated.
7. Pipes entering manholes shall have a flexible joint within 600mm of the inside face of the manhole joining with a short rocker pipe.

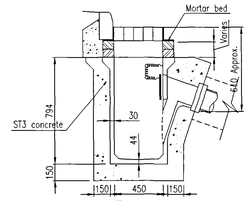
Typical Masonry Manhole Detail



Section C-C



Typical Trapped Gully Detail

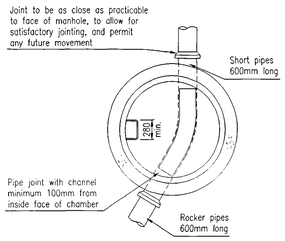


Typical Trapped Road Gully/ Kerb Detail

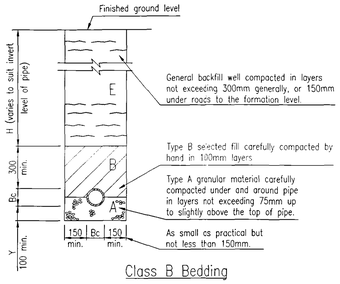
All materials, workmanship & construction for gullies shall comply with clause 5.9, of the 'Lincolnshire County Council, Development Road Specifiation and Construction Guide', current edition.

Gully Notes

1) Cover and frame, uncoated iron to clause 5.9.4.
2) Mortar bed & benching to Clause 13, 'Lincolnshire County Council, Development Road Specification and Construction Guide', current edition.
3) Bricks to be class B engineering bricks to BS 3921 (single course where necessary to obtain satisfactory fall). Corbelled if required. Frames to be bricked on four sided.
4) Insitu ST3 concrete.
5) Position of outlet pipe varies.
6) Insitu ST3 concrete 150mm thick surround to outlet pipe for first one metre under verge or total length under carriageway.
7) Where grating is to be trafficked or laid against within 24 hours of frame being placed in position, then a suitable ultra rapid hardening mortar and concrete (Monoset 241 or similar) shall be used to bed cover and frame.

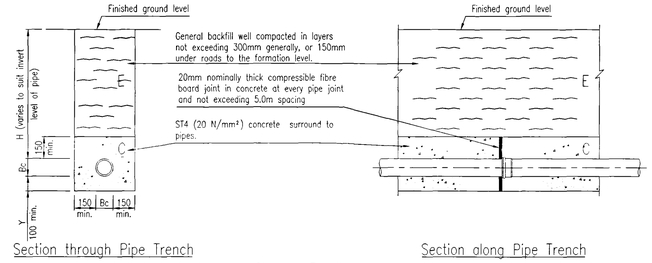


Section A-A



Class B Bedding

(Vitrified Clay)

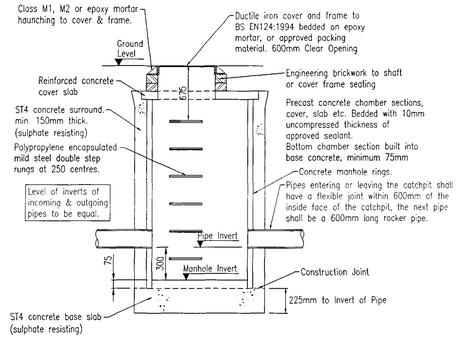


Section through Pipe Trench

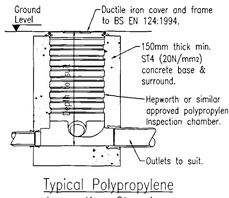
Section along Pipe Trench

Class A Bedding

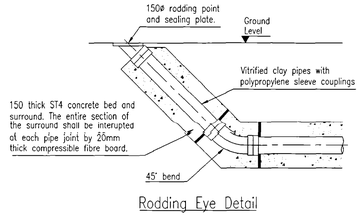
(Vitrified Clay)



Typical Catch Pit Detail



Typical Polypropylene Inspection Chamber



Rodding Eye Detail

Table A

Granular bedding and sidefill material for vitrified clay pipes

PIPE SIZE DN (mm)	MAX. PARTICLE SIZE (mm)	NOMINAL SINGLE SIZE (mm)	GRADED SIZE (mm)	MAXIMUM CFE VALUE FOR AS-DUG
110	10	10	NOT PERMITTED	0.15
OVER 110 to 160	15	10 or 14	14 to 5	0.15
OVER 160 to 300	20	10,14 or 20	14 or 20 to 5	0.15
OVER 300 to 600	20	14 or 20	14 or 20 to 5	0.15

General Drainage Notes

1. This drawing is to be read in conjunction with all other relevant Engineers and Architects details.

2. All material & workmanship to be in accordance with 'Sewers for Adoption 4th Edition'.

3. All work is to be carried out in accordance with the current British Standards, B.S. codes of practice & Building Regulations.

4. Refer to SFA Specification for concrete grades & sand/ cement mortar grades. All precast & in-situ concrete to contain a minimum Class 3 suphate resisting cement.

5. Pre-formed channels are to be used at manholes.

6. Granolithic concrete benching to be steel trowelled to a dense smooth face neatly shaped & finished to all branch connections & laid in accordance with the Specification.

7. All dimensions are in millimetres u.n.o.

8. Pipe bends to suit direction of flow.

9. Manhole covers and frames to be to EN 124. Use grade D400 covers in vehicular movement areas and grade A15 covers in non-vehicular areas.

10. All trenches under carriageway to be backfilled with Type 1 Sub-base, well compacted in layers not exceeding 150mm loose depth.

Notes on Bedding Details

Generally vitrified clay drainage pipework should be laid in accordance with BS 65 and BS 8301.

A-Type A granular material shall comply with WIS No. 4-08-01 and shall be:-
(a) Imported single size or graded aggregate in accordance with BS 882 as shown in the table A.
(b) Selected as-dug granular bedding and sidefill material shall be free from organic matter, combustable materials, frozen soil, clay lumps larger than 75mm and stones larger than the maximum permitted particle size specified in table A depending on pipe size. The selected material shall be evaluated using the compaction fraction test detailed in Appendix A of WIS No. 4-08-01.
Material excavated from trenches dug through land contaminated with domestic, building or industrial waste should not be used.

B-Type B selected fill shall be:
Uniform readily compactable material which is free from tree roots, vegetable matter, building rubbish, frozen soil, clay lumps and material retained on a 40mm sieve.

C-Concrete protection to pipe. For concrete grade refer to note 4 and concrete mix specification

E-General backfill shall be:
Suitable excavated material from the trench (or imported) excluding boulders, lumps of concrete, timber and vegetable matter. Do not use heavy compactors before there is 600mm cover of material over the pipes.

Bc-External diameter of pipe.

H-When 'H' (depth of cover) is less than 0.9m below the finished surface of a road or less than 0.3m elsewhere use bedding class A or 2 as appropriate for the material being used, or,
Elsewhere use bedding class B or P as appropriate for the pipe being used. Provide temporary protection during construction against mechanical damage and frost.

Y-Depth of granular bedding Y shall be not less than 100mm beneath pipe barrels and shall be greater in soft or wet conditions or where the trench bottom is irregular.

Road Construction Notes

1. Do not scale from this drawing, if in doubt, ASK.

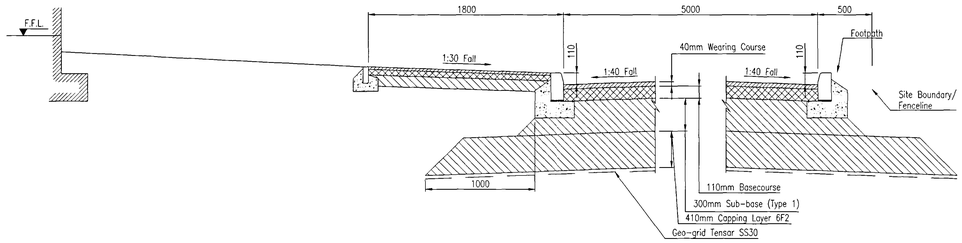
2. Highway construction materials and workmanship shall be in accordance with the current edition of 'Lincolnshire County Council Development Road Specification and Construction' guide.

3. This drawing shall be read in conjunction with all other relevant engineers and architects drawings.

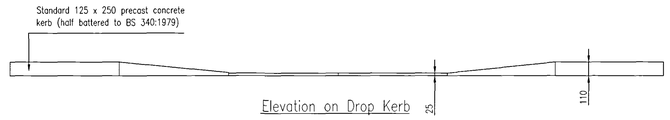
4. All work is to be carried out in accordance with the current British Standards, British Standard Codes of practice and Building Regulations.

Street Lighting Notes

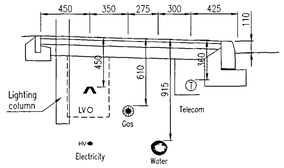
Street lighting columns to be as Lincolnshire County Council Specification 5/35/C/93, and the layout is to comply with BS 5489:Part 3:Cat.3.3. All lighting to be supplied with REC Supplies. All street lighting columns to be located within the adoptable highway and at the back of footway/ service margin.



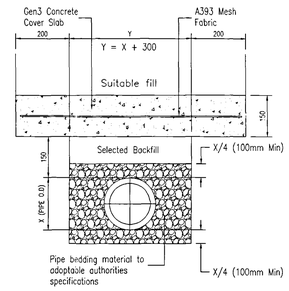
Typical Road Construction



Elevation on Drop Kerb



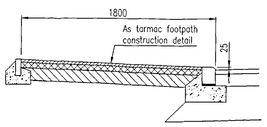
Location of Public Utility Services (Footpath/ Services Margin)



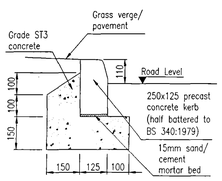
Type S Pipe Bedding With Concrete Slab Protection

Granular Bed & Surround

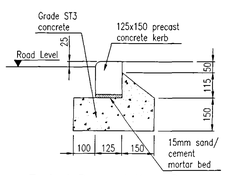
NOT TO SCALE



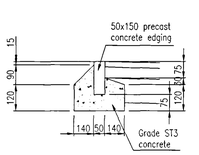
Typical Vehicle Crossing Detail



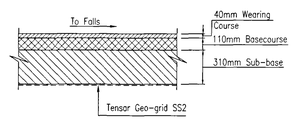
Typical Standard Kerb Detail



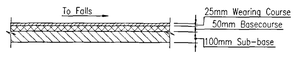
Typical Dropped Kerb Detail



Typical Edging Kerb Detail



Typical Tarmac Parking Area Construction Detail



Typical Tarmac Footpath Construction Detail

REV	DATE	REMARKS
F	22/12/05	Tie in Detail added. 500mm wide strip shown as footway
E	10/11/05	Drawing revised
D	1/11/05	Drawing revised
C	2/3/05	Road construction detail altered, Type S pipe bedding detail added
B	16/8/04	Drawing Construction amended to LCC Design Guide Based on Chart 1.
A	6/8/01	Drawing revised to address L.C.C. comments in letter dated 2/8/01. Ground investigation/ CBR note added. Concrete bedding to edging kerb amended to 330mm wide. 'For Approval' drawing status added.

STATUS FOR APPROVAL

SIDEBOTTOM RICHARDSON CHENG LTD
15 HIGH STREET, SPALDING, LINCS. PE11 1TW
TEL: (01775) 712660 FAX: (01775) 712655 EMAIL: src@src-c.co.uk
CONSULTING STRUCTURAL AND CIVIL ENGINEERS

PROJECT
Proposed Development, off Park Road, Spalding, Lincolnshire, for Cley Developments

TITLE
Road & Drainage Sections & Details

DATE	April 2004	SCALE	1:20, 1:10
DRAWN	SRC	CHECKED	
DESIGN		FILENAME	15403-02

DRG No. 15403-02 REV F

SHDC PLANNING & DEVELOPMENT 31 MAY 2006 Ref. S/765/06

DETERMINED PLAN

DETAILS ON THIS DRAWING ARE COPYRIGHT OF SIDEBOTTOM RICHARDSON CHENG LIMITED.THIS IS A CONFIDENTIAL DOCUMENT AND MUST NOT BE COPIED, USED OR DIVULGED IN ANY WAY WITHOUT PRIOR WRITTEN CONSENT