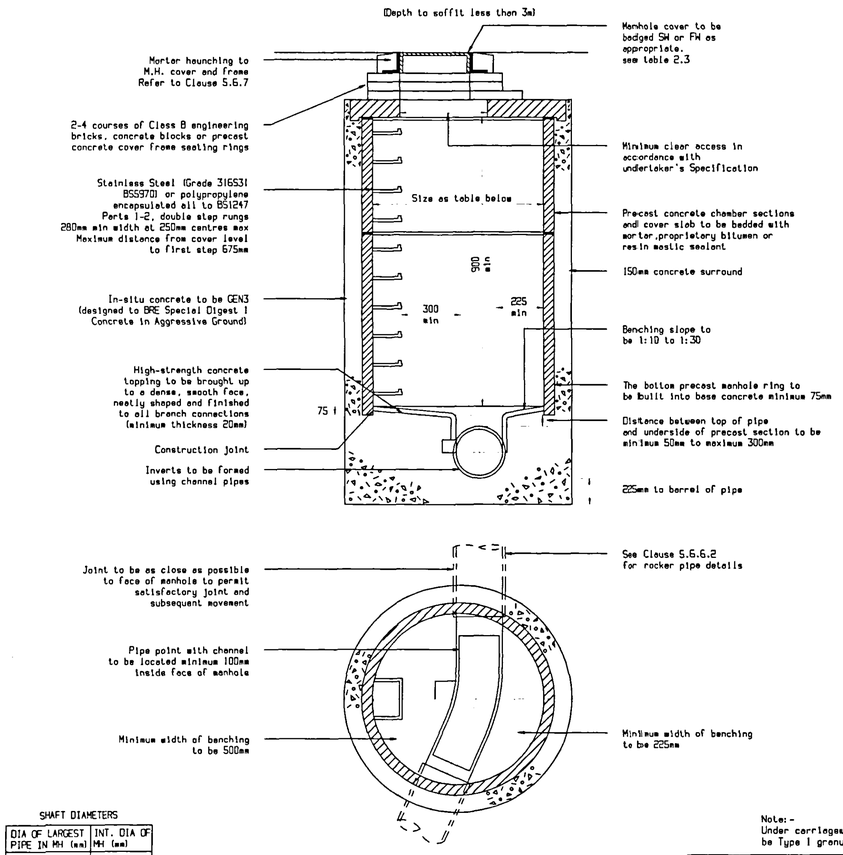
TYPICAL MANHOLE DETAIL TYPE B



SHAFT DIAMETERS

DIA OF LARGEST PIPE IN MH (mm)	INT. DIA OF MH (mm)
375 OR LESS	1200
450 TO 700	1500
750 TO 900	1800

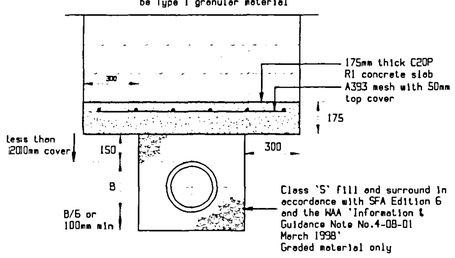
Chambers with outgoing pipes greater than 600mm dia shall be fitted with removable stainless steel (Grade 316) safety chains or polypropylene rope

CLAUSE 5.6.6 PIPES AND JOINTS ADJACENT TO STRUCTURES

1. A flexible joint shall be provided as close as is feasible to the outside face of any structure into which a pipe is built, compatible with the satisfactory completion and subsequent movement of the joint.
2. The length of the next pipe (rocker pipe) away from the structure shall be shown as in the Table below.

Nominal pipe dia. (mm)	Rocker Pipe Effective Length (m)
150 - 600	0.6
675 - 750	1.0
750 and over	1.25

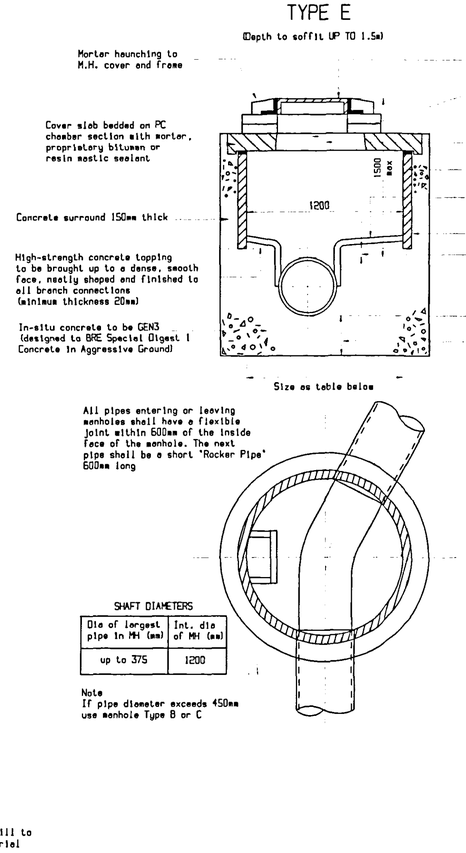
Note:- Under carriageway backfill to be Type 1 granular material



CONCRETE PIPE PROTECTION

CARRIAGEWAY - Less than 1200mm cover
OPEN SPACE - Less than 900mm cover

TYPICAL MANHOLE DETAIL TYPE E



SHAFT DIAMETERS

Dia of largest pipe in MH (mm)	Int. dia of MH (mm)
up to 375	1200

Note
If pipe diameter exceeds 450mm use manhole Type B or C

SPECIFICATION CLAUSES TAKEN FROM "SEWERS FOR ADOPTION" 6TH EDITION.

CLAUSE 5.2.32 MANHOLE COVERS AND FRAMES

1. Manhole covers and frames shall comply with the relevant provisions of BS EN 124 and they shall be of a non-rocking design which does not rely on the use of cushion inserts.
2. REFER TO MANHOLE DETAIL FOR COVER SPECIFICATION AND TYPE
3. Minimum frame depths for NRSWA road categories 1-IV shall be as follows:

NRSWA Road Category	Description	Minimum Frame Depth (mm)
I	Trunk roads & dual carriageways	150
II	All other A roads	150
III	Bus services	150
IV	All other roads except Residential cul-de-sacs	150
	Residential cul-de-sacs	100

Class B 125 shall be used in footways,pedestrian areas & compareable locations.

4. All manhole covers shall be the non-ventilating type and shall have closed keyways.

MANHOLE SCHEDULE FOR MINIMUM DIAMETER

Diameter of largest pipe	Diameter of chamber	Diameter of largest pipe	Diameter of chamber	Diameter of largest pipe	Diameter of chamber
150	1200	450	1500	750	1800
225	1200	525	1500	825	1800
300	1200	600	1500	900 - 975	1800
375	1200	675	1500	> 975	2400

GENERAL NOTE:-
The details on this drawing are to comply with the Water Authorities Association Design Guide - Sewers For Adoption, 6th edition, dated March 2006.

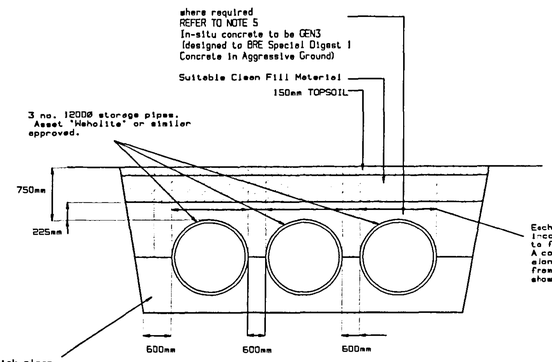
NOTES:-

1. The centre of any manhole is not necessarily co-incidental with the centre line of the main pipe.
2. Positioning of the manhole covers and step irons to be directed on site.
3. Construction joints in the concrete surround must not coincide with the joints in the precast concrete chamber rings.
4. The benching is to be formed to direct flow from side connections into the main flow.
5. Sulphate resisting cement is required in all concrete products used for Section 104 works on the site.
6. All lateral crossings to twin sewers shall be to the bedding and backfill standards described on the drawings, and protected as necessary. The high level sewer shall not be undermined by the low level lateral and connection. All end caps to laterals shall be painted "FW" or "SW" as appropriate.

NOTES:-

TRENCH BACKFILL

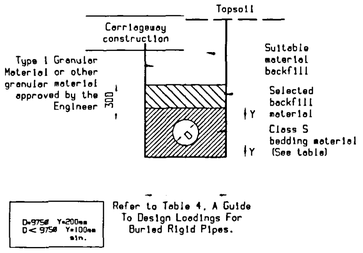
1. Where the soffit of the Pipe is less than 0.5m below formation - Backfill to formation with Class E concrete.
2. Where the soffit of the Pipe is between 0.5m & 1.0m below formation - Backfill to formation with Type 1 Sub-base (allow for granular bedding material 150mm above crown of Pipe).
3. Where the soffit of the Pipe is greater than 1.0m below formation - backfill with suitable fill.



OFF LINE STORMWATER STORAGE TANK DETAILS. ASSET WEHOLITE OR SIMILAR APPROVED.

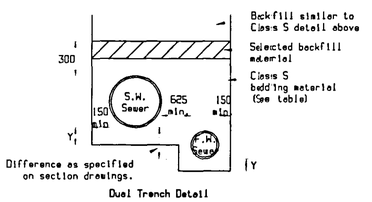
NOTES

1) Tank system shall be laid strictly in accordance with the manufacturer's instructions.
2) All joints shall be welded extrusion welded in accordance with the manufacturers instructions, and shall be watertight.
3) Design loading shall be to Dept of Transport Directive BD 37/88: Loads for Highway Bridges.
4) Working Drawings for final storage pipework configuration shall be provided by the manufacturer, and supplied to the Engineer for approval.
5) Concrete weighting slab only required where proven to be necessary by flotation calculations



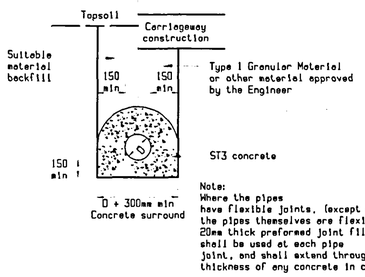
Class S Bedding
(Fm. - 2.2)

Nominal size DN	Pipe Bedding Requirement
150	14 to 5 graded
225 to 525	14 to 5 graded or 20 to 5 graded
600 and above	crushed rock or 14 to 5 graded or 20 to 5 graded or 40 to 5 graded



Dual Trench Detail

PIPE BEDDING DETAILS



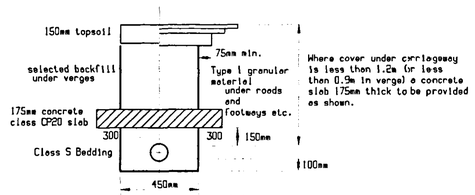
Note:
Where the pipes have flexible joints, (except where the pipes themselves are flexible), a 20mm thick preformed joint filler shall be used at each pipe joint, and shall extend through the full thickness of any concrete in contact.

Concrete Bed and Surround Gully Connections Only

RISING MAIN TRENCH DETAIL

NOTES FOR RISING MAIN

1. For details of rising main plan and longitudinal sections, refer to drawings E1727/2, E1727/3
2. Rising main to be Black MDPE,Rating SDR11 (108ø,nom.100mm ID) butt welded and push fast jointing systems with VJ couplings to other pipework.
3. Connection to gravity discharge manhole is to be made using a short length of rocker pipe and VJ coupling,or as directed by AMS on site.Benching to be reformed as necessary.
4. All reinstatement is to be to the satisfaction of the relevant Authority (other Statutory Authority/Highway Authority or Private Landowner as appropriate).
5. The Contractor must contact all Statutory Authorities in order to locate their plant/apparatus on site in order that a smooth route may be established for the rising main.The route indicated on other plans is indicative only,and may need to be adjusted as necessary on site.
6. Any significant departure from line and level as shown on other Drawings should be brought to the attention of the Engineer immediately.
7. Testing of MDPE pipe work shall be carried out in accordance with Provisional Pressure Test Type 2 detailed in Section 8 of the Manual for MDPE systems for Water Supply,published by MRc. The test pressure shall be 15 bar MDPE pipe work.



Marker tape to be laid full length of Rising Main

NOTE
Marker Tape - a green tape marked "Sewage Pumping Main Below" (or similar) and containing a tracer wire must be laid approximately 300 mm above the crown of the Rising Main and effectively bonded to any on-line valves and station pipework. ("Plyage HRD" by Robert Frazer Industrial, Ashville Way, Cambridge Road Trading Estate, Whetstone, Leicester,LE8 3NU or approved equal)

All adoptable drainage shall conform to the design and construction guide for developers, Sewers For Adoption 6th Edition, March 2006.

Rev. No.	REVISION	Date	Drawn By

Written dimensions to be taken. Do not scale off the drawing
Any discrepancies, written or scaled, should be brought to the attention of the engineer immediately.
This drawing to be read in conjunction with the relevant Bills of Quantities and Local Authority Specification.
CDM NOTE: The design has been undertaken as far as possible to avoid risks to health and safety or to reduce and control the effects of any unavoidable risks.
All relevant information identifying the unavoidable risks has been passed to the planning supervisor for inclusion in the Health & Safety plan.
The Health & Safety plan will be issued by the planning supervisor with these drawings.

WORMALD, BURROWS PARTNERSHIP
Civil Engineering Consultants
12a & 14a Hitchin Street, Biggleswade, Beds SG18 8AX, U.K.
Tel 01767 3172
Fax 3154

Project
Proposed Development at:-
West Parade, Spalding, Lincolnshire.

DRAWING
26 SEP 2006
ISSUED

Drawing Description
Standard Drainage Construction Details

Client
Allison Homes Eastern Limited
Holland Place
Wardentree Park
Pinchbeck
Spalding
Lincs, PE11 3ZN

Client Drawing Number
B001/205/0

Drawn By AJMB Date 7.7.06

Scale N.T.S.

Checked By WD Date 8.8.06

Engineering Drawing Number
E1727/5

PLANNING & DEVELOPMENT
20 SEP 2006
Ref. 1363/06