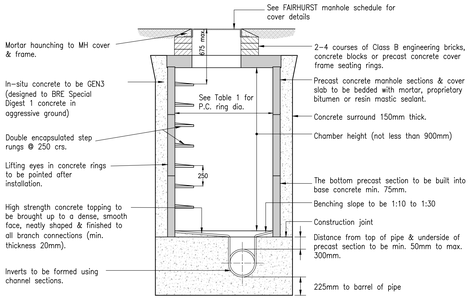
TYPICAL MANHOLE DETAIL – TYPE B

(DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 1.5m TO 3.0m)



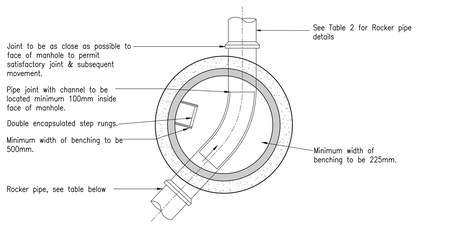


TABLE 1 – MANHOLE RING DIAMETERS

Pipe Diameter (mm)	Minimum Manhole Ring Diameter (mm)	Minimum Clear Opening (mm)
Less than 300	1200	600x600
300 – 450	1200	600x600
Greater than 450	The larger of 1800 or (DN + 775)	600x600

Unless Specified Otherwise in MH Schedules

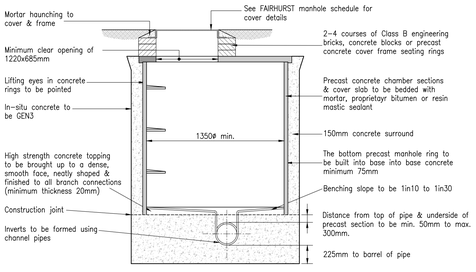
TABLE 2 – ROCKER PIPE LENGTHS

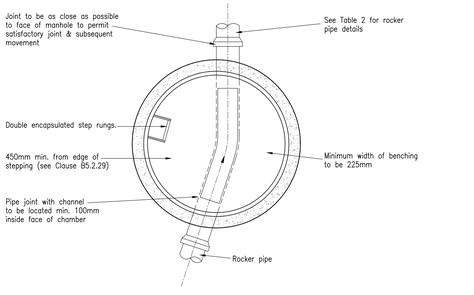
Nominal diameter (mm)	Effective length (m)
100 to 600	0.6
675 to 750	1.0
825 & over	1.25

Rocker pipe to be installed as close as possible to face of chamber to permit satisfactory joint & subsequent movement

TYPICAL MANHOLE DETAIL – TYPE C

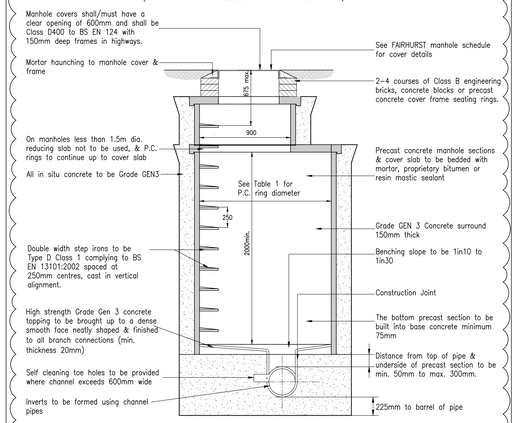
(DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE UP TO 1.50m)

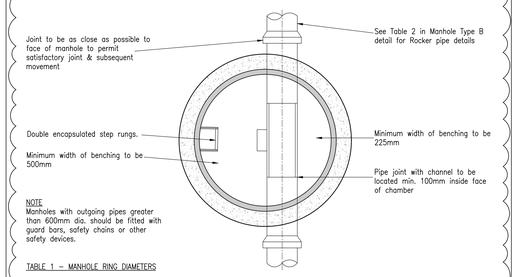




TYPICAL MANHOLE DETAIL – TYPE A

(DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 3m–6m)





NOTE
Manholes with outgoing pipes greater than 600mm dia. should be fitted with guard bars, safety chains or other safety devices.

TABLE 1 – MANHOLE RING DIAMETERS

Pipe Diameter (mm)	Minimum Manhole Ring Diameter (mm)	Minimum Clear Opening (mm)
Less than 375	1200	600x600
375 – 700	1500	600x600
750 – 900	1800	600x600

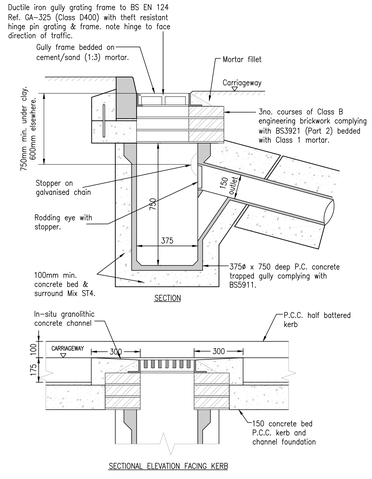
Unless Specified Otherwise in MH Schedules

TABLE 2 – ROCKER PIPE LENGTHS

Nominal diameter (mm)	Effective length (m)
100 to 600	0.6
675 to 750	1.0
825 and over	1.25

Rocker pipe to be installed as close as possible to face of chamber to permit satisfactory joint and subsequent movement

TYPICAL ROAD GULLY DETAILS



CONCRETE SURROUND TO PIPES

Class Z Bedding

PIPE WITH COVER LESS THAN 1.2m & GULLY CONNECTIONS

GRANULAR SURROUND TO PIPES

Class S & T Bedding

COVER GREATER THAN 1.2m

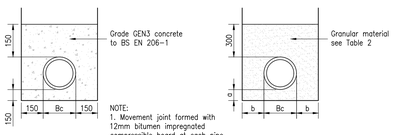


TABLE 1

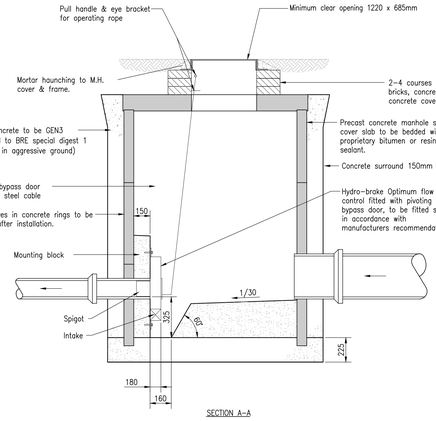
Strata	Dimension 'a'	Dimension 'b'
Soil	Bc/4 or 100mm minimum. Not less than 50mm undersockets	150mm min. clearance from barrel or socket
Rock	Bc/4 or 200mm minimum. Not less than 150mm undersockets	200mm min. clearance from barrel or socket

Bc = External pipe diameter

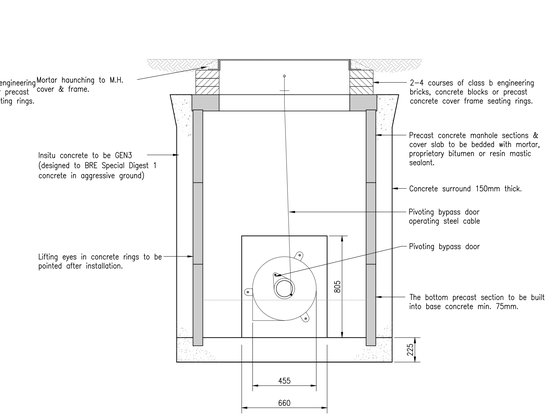
TABLE 2 – PIPE BEDDING & SURROUND FOR RIGID PIPES

Pipe nominal size (mm)	Aggregate to BS882
150	10 or 14mm nominal single size 14mm to 5mm graded
over 150 to 500	10, 14 or 20mm nominal single size 14mm to 5mm graded 20mm to 5mm graded
over 500	10,14, 20 or 40mm nominal single size 14mm to 5mm graded 20mm to 5mm graded 40mm to 5mm graded

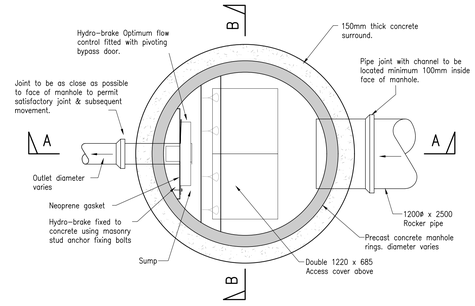
HYDROBRAKE DETAIL



SECTION A–A



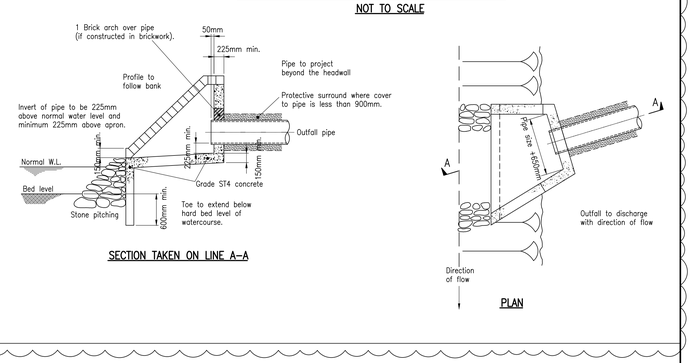
SECTION B–B



PLAN ON HYDROBRAKE MANHOLE

TYPICAL DETAIL OF HEADWALL INLETS TO WATERCOURSES

NOT TO SCALE



PERMEABLE PAVING DETAILS

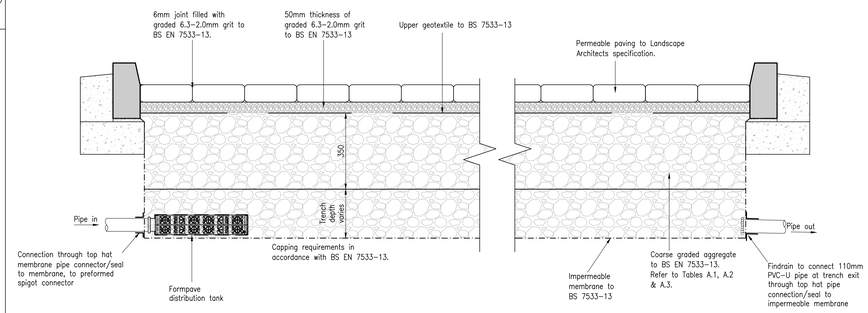


Table A.1 **Sub-base grading**

Sieve size	Percentage passing	
mm	Coarse aggregate, 4/40	Coarse aggregate, 4/20
80	100	—
63	98–100	—
40	90–99	100
31.5	—	98–100
20	25–70	90–99
10	—	25–70
4	0–15	0–15
2	0–5	0–5
1	—	—

NOTE The gradings for 4/20 are typical and advice should be sought from the block manufacturer on specific gradings suitable for their product/system.

Table A.2 **Laying course and jointing material grading**

BS sieve size (BS EN 993–1)	Percentage passing
mm	
14	100
10	98–100
6.3	80–99
2.0	0–20
1.0	0–5

NOTE These gradings are typical, advice should be sought from the block manufacturer on specific gradings suitable for their product/system.

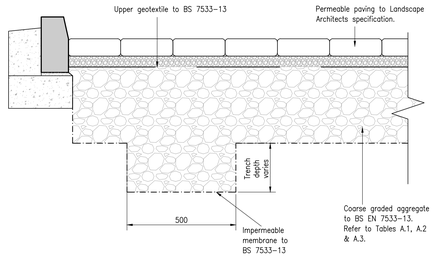


Table A.3 **Physical property recommendation for CGA**

Properties	Category to BS EN 13242 or BS 12620
Grading	4/20 (preferred) or 4/40, G_A 85–15, GT_4 20/17.5
Fines content	f_4
Shape	FI_{20}
Resistance to fragmentation	LA_{50}
Durability: – Water absorption to BS EN 1097-6:2000 +A1:2005, Clause 7 – for WA > 2% – Magnesium sulfate soundness	$WA_{24}2$ MS_{18}
Resistance to wear	$M_{DE}20$
Acid-soluble sulfate content: – aggregates other than air-cooled blast-furnace slag and – air-cooled blast-furnace slag	$AS_{0.2}$ $AS_{1.0}$
Total sulfur: – aggregates other than air-cooled blast-furnace slag – air-cooled blast-furnace slag	≤ 1% by mass ≤ 2% by mass
Volume stability of blast-furnace and steel slags; air-cooled blast-furnace slag – steel slag	Free from dicalcium silicate and iron disintegration in accordance with BS EN 13242:2002+A1:2007, 6.4.2.2. V_S
Leaching of contaminants	Blast-furnace slag and other recycled materials should meet the requirements of the Environment Agency "Waste Acceptance Criteria"[A1] for inert waste when tested in accordance with BS EN 12457-3.

[A1] Guidance on waste acceptance criteria for inert waste is given in the Environment Agency's *Guidance for waste destined for disposal in landfills* (2).

Do not scale from this drawing.

SAFETY HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING RISKS AND INFORMATION.

RISKS LISTED HERE ARE NOT EXHAUSTIVE. REFER TO DESIGN ASSESSMENT FORM.

CONSTRUCTION
- WORKING IN A LIVE SEWERAGE SYSTEM
- WORKING AT HEIGHT
- WORKING ADJACENT TO LIVE ROADWAY
- EXISTING SERVICES
- DISRUPTION TO DRAINAGE
- PUBLIC INTERFACE

DEMOLITION
- BREAKING OUT EXISTING DRAINS AND SEWERS

FOR INFORMATION RELATING TO USE, CLEANING AND MAINTENANCE SEE THE HEALTH AND SAFETY FILE

IT IS ASSUMED THAT ALL WORKS WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROVED METHOD STATEMENT.

NOTES

1. This drawing is to be read in conjunction with the following FAIRHURST drawings:
   - 138443/1002 – Proposed Site Levels
   - 138443/2002 – Proposed Drainage Layout
   - 138443/2005 – Manhole Schedules
   - 138443/2006 – Drainage Notes

Rev.	Date	Description	Drwn.	Chkd.	Appd.
B	31/01/21	UPDATED TO SUIT NEW SITE LAYOUT, AS CLOUDED	FM	SNK	JG
A	18/01/21	DRAINAGE STRATEGY UPDATED TO SUIT REVISED SITE LAYOUT	FM	SNK	JG

FAIRHURST
1 Amgrove Court
Barrack Road,
Newcastle–upon–Tyne
NE4 6DB
Tel: 0191 221 0505
Fax: 0844 381 4412

Client: THOMAS MILBURN PROPERTY LTD.

Project Title: HENSINGHAM HOUSE PHASE ONE AND TWO

Drawing Title: HENSINGHAM HOUSE DRAINAGE CONSTRUCTION DETAILS SHEET 1

Scale at A0:	Status:	
NTS	Planning	
Drawn:	Checked:	Approved:
AC	AL	MT
Date:	Date:	Date:
19/02/21	19/02/21	19/02/21

Drawing No.: 138443/2003 Revision: B