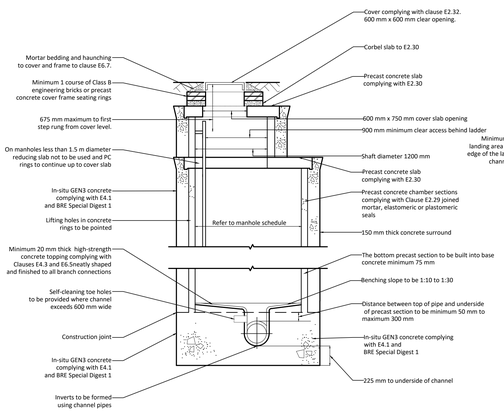


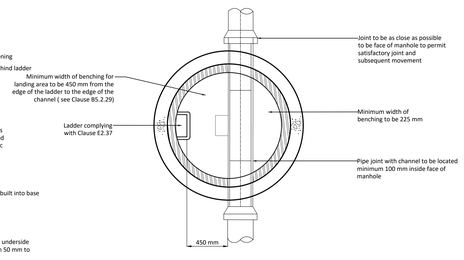
SECTION A-A

SHAFT DIAMETERS	
Dia of largest pipe in MH (mm)	Int. Dia of MH (mm)
Less than 375	1200
375 to 450	1350
500 to 750	1500
750 to 900	1800
Greater than 900	Pipe diameter + 900

For every two additional incoming pipes, the diameter of the manhole shall be increase by 150mm.

Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'

NOTE: All insitu concrete shall be sulphate resisting unless agreed otherwise

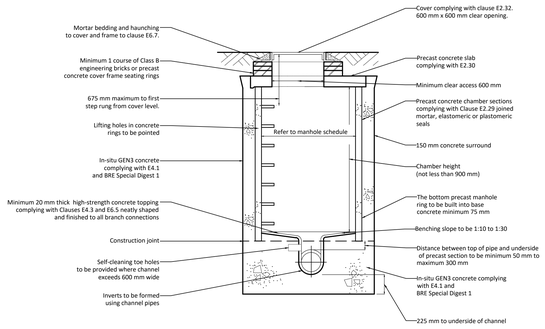


Note: Opening to be located centrally over 900 mm shaft and offset approximately 200 mm for 1200 mm diameter shaft with ladder

PLAN

ROCKER PIPES	
Pipe diameter (mm)	Effective Length (mm)
150 to 600	600

Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'



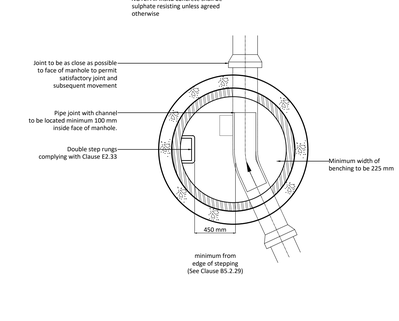
SECTION A-A

SHAFT DIAMETERS	
Dia of largest pipe in MH (mm)	Int. Dia of MH (mm)
Less than 375	1200
375 to 450	1350
500 to 750	1500
750 to 900	1800
Greater than 900	Pipe diameter + 900

For every two additional incoming pipes, the diameter of the manhole shall be increase by 150mm.

Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'

NOTE: All insitu concrete shall be sulphate resisting unless agreed otherwise



PLAN

ROCKER PIPES	
pipe diameter (mm)	Effective length (mm)
150 to 600	600
over 600	1000
over 750	1250

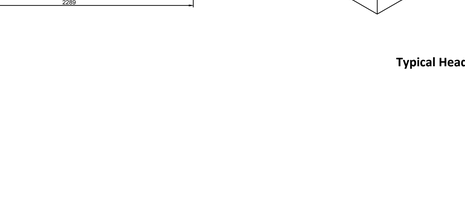
Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'

General Notes

This drawing is to be used in conjunction with all relevant drawings, specifications and details.

1. All dimensions are in metres unless otherwise stated.
2. All levels are in metres.
3. This drawing is to be read in conjunction with all relevant Engineers and Architect's drawings, Specifications, Reports and Engineering Details.

Precast Concrete Manhole Type A
Depth from cover level to soffit of pipe 3.0 m to 6.0 m with ladder and reducing slab
Rigid material construction with concrete surround



SECTION A-A

SHAFT DIAMETERS	
Dia of largest pipe in MH (mm)	Int. Dia of MH (mm)
Up to 375	1350
375 to 450	1350

For every two additional incoming pipes, the diameter of the manhole shall be increase by 150mm.

If the pipe diameter exceeds 375mm, manhole types B or C shall be used

Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'

Internal dimensions of manhole normally 1350 mm but manhole diameter should be increased for pipes larger than 450 mm diameter to give 225 mm benching in accordance with BS.2.29

NOTE: All insitu concrete shall be sulphate resisting unless agreed otherwise

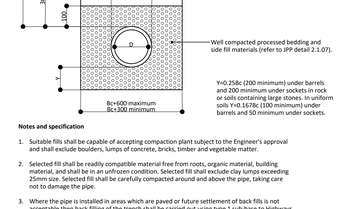
PLAN

ROCKER PIPES	
Pipe diameter (mm)	Effective Length (mm)
150 to 600	600

Note: The use of precast concrete chamber units to E2.29 with 150 mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted

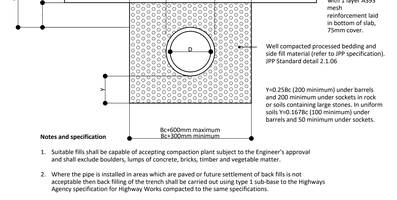
Note: For clauses referenced above refer to Water UK Sewerage Sector Guidance Appendix C'

Precast Concrete Manhole Type B
Depth from cover level to soffit of pipe 1.5 m to 3.0m
Alternative rigid material construction with concrete surround



Notes and specification

1. Suitable fills shall be capable of accepting compaction plant subject to the Engineer's approval and shall exclude boulders, lumps of concrete, bricks, timber and vegetable matter.
2. Selected fill shall be readily compatible material free from roots, organic material, building material, and shall be in an unfrozen condition. Selected fill shall exclude clay lumps exceeding 25mm size. Selected fill shall be carefully compacted around and above the pipe, taking care not to damage the pipe.
3. Where the pipe is installed in areas which are paved or future settlement of back fills is not acceptable then back filling of the trench shall be carried out using type 1 sub-base to Highways Agency specification for Highway Works compacted to the same specifications.
4. Minimum cover:
   Cover shall be greater than:
   2000mm in areas subject to heavy construction plant.
   1000mm in areas subject to normal construction traffic.
   1200mm to finished level of new main road pavements.
   600mm in landscape areas, foot ways, gardens or fields

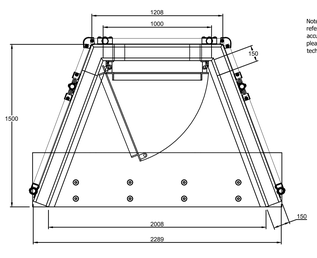


Notes and specification

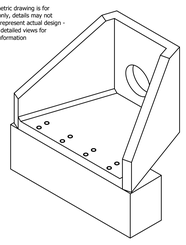
1. Suitable fills shall be capable of accepting compaction plant subject to the Engineer's approval and shall exclude boulders, lumps of concrete, bricks, timber and vegetable matter.
2. Where the pipe is installed in areas which are paved or future settlement of back fills is not acceptable then back filling of the trench shall be carried out using type 1 sub-base to the Highways Agency specification for Highway Works compacted to the same specifications.
3. Back filling and compaction of suitable fills shall not be carried out until the concrete slab has obtained sufficient strength to accommodate back filling operations.
4. Rigid pipes shall be:
   (i) Clay pipes with min FN of 40 to BS EN 295 and BS65
   (ii) Concrete pipes to BS 5911 and BS EN 1916
   Concrete pipes shall not be used for foul sewers unless otherwise stated.
5. Construction, subsequent testing, operation and maintenance shall be carried out in accordance with BS EN 752. Sewers to be adopted by water companies shall be installed in accordance with the current edition of 'Sewers for Adoption' produced by the Water Services Association. Sewers to be adopted by highway authorities shall be installed in accordance with the authority's specification.
6. Movement joints shall be formed at intervals not exceeding 6.0m centers and comprise 20mm thick compressible filler board placed between slabs.
7. Cover to pipes shall be
   (1) 900mm or less in landscape areas, foot ways, gardens or fields
   (2) 1200mm or less to finished level of main road pavements.
8. Workmanship shall be on accordance with BS 8000 - 14:1989

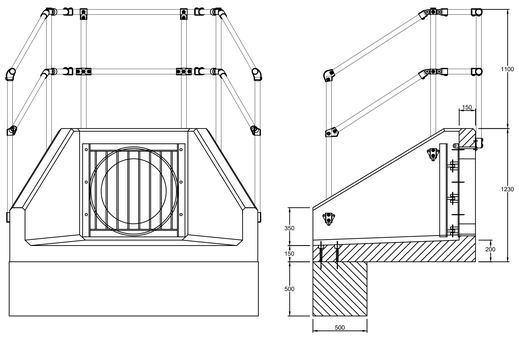
Flexible carrier drain - class s bedding, surround and backfill

Rigid carrier drain class s bedding sidefill and backfill with bridging slab



Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information





Headwall shown is Althon Headwall 'SFA10 C' as per standard detail drawing provided by Althon

Typical Headwall Detail

Notes and specification

1. Processed granular bedding and side fill materials shall include aggregates to BS EN 12620 + A1 and lightweight aggregates to BS EN 13055-1 and shall be graded as defined in the following tables:

Table 1

Pipe Nominal Size (mm)	Maximum Partical Size (mm)	Class of Bedding	Maximum CF Value	Material
100	10	S B	0.15 0.30	10mm nominal single size
over 100 to 150	15	S B	0.15 0.30	10 or 14mm nominal single size or 14 to 5mm graded.
over 150 to 300	20	S B	0.15 0.30	10, 14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 300 to 550	20	S B	0.15 0.30	14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 550	40	S B	0.15 0.30	14, 20 or 40mm nominal single sized crushed rock or 14 to 5mm graded or 20mm to 5mm graded or 40 to 5mm graded.

2. The sulphate content of bedding and side fill materials shall not be greater than 0.3% as sulphur trioxide. The above specification has been produced based on the Water Industry specification publication
3. No. 4-08-01 (issue 4) February 1994.
4. Compaction factor (CF) shall be determined in accordance with water industry publication No 4-08-02 (issue 1) February 1994 - appendix B.

Specification for bedding and sidefill materials for flexible pipes (class s bedding)

Notes and Specification

1. Processed granular bedding and side fill materials shall include aggregates to BS EN 12620 + A1 and lightweight aggregates to BS EN 13055-1 and shall be graded as defined in the following tables:

Table 1

Pipe Nominal Size (mm)	Maximum Partical Size (mm)	Class of Bedding	Maximum CF Value	Material
100	10	S B	0.15 0.30	10mm nominal single size
over 100 to 150	15	S B	0.15 0.30	10 or 14mm nominal single size or 14 to 5mm graded.
over 150 to 300	20	S B	0.15 0.30	10, 14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 300 to 550	20	S B	0.15 0.30	14 or 20mm nominal single size or 14 to 5mm graded or 20mm to 5mm graded.
over 550	40	S B	0.15 0.30	14, 20 or 40mm nominal single sized crushed rock or 14 to 5mm graded or 20mm to 5mm graded or 40 to 5mm graded.

2. The sulphate content of bedding and side fill materials shall not be greater than 0.3% as sulphur trioxide.
3. The above specification has been produced based on the Water Industry specification publication No. 4-08-01 (issue 4) February 1994.
4. Compaction factor (CF) shall be determined in accordance with water industry publication No 4-08-02 (issue 1) February 1994 - appendix B.

Specification for bedding and sidefill materials for rigid pipes (Class S & B bedding)

Rev				
Rev	C	Headwall Detail Added	By AD Checked LC	18.12.2023
Rev	B	'Do not scale' note removed as requested by LPA.	By GM Checked LC	02.11.2023
Rev	A	Minor amendment to notes.	By GM Checked DJ	11.10.2023

jpp
- Infrastructure Design
- Structural Engineering
- Development Planning
- Professional Advice
- Geotechnical & Environmental
- Surveying

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Client: Minster Property Group

Project: West Street Chatteris

Title: Adoptable Drainage Construction Details

Scale at A0	NTS	Drawn by	ARJ	Checked by	LC	Date	July 2023
Status: **FOR PLANNING**		Project ref: 26065		Drawing no.: 105		Revision: C	

Drawing is not to be used for construction until status is CONSTRUCTION