Typical Manhole Details

April 2023





Typical Manhole Details

The drawings included in this document are typical details that should be Incorporated Into the design of a development site that you are proposing for adoption under Section 104 of the Water Industry Act 1991.

A developer who is planning to construct a sewer network which will be adopted by Yorkshire Water should ensure that the prospective public sewers and associated assets are designed and constructed in accordance with the Design and Construction Guidance (DCG), Local Practices and Technical Standards contained within the Code for Adoption.

These drawings are to be used as a guide as part of your S104 application submission. All drawings submitted for assessment must be site specific and marked up with the site name and appropriate drawing reference number.

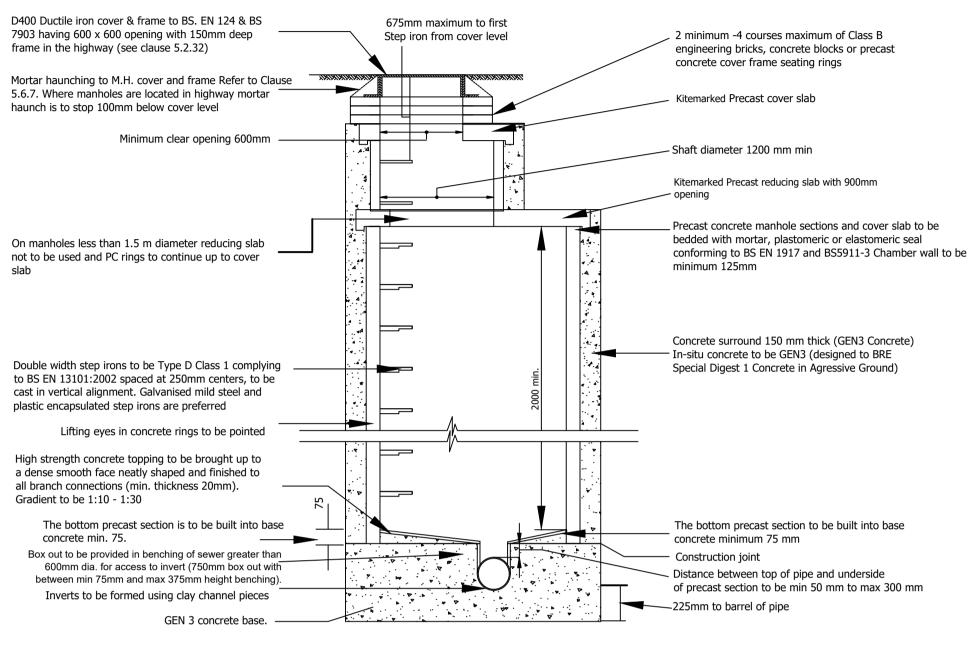
This document contains the following typical manhole details:

- YW-DS-001 Typical Manhole Details
- YW-DS-002 Wide Wall Manhole Details
- YW-DS-003 Typical Demarcation Chambers
- YW-DS-004 Typical Construction Details

Typical Manhole Construction

Type A1 (Design and Construction Guidance)

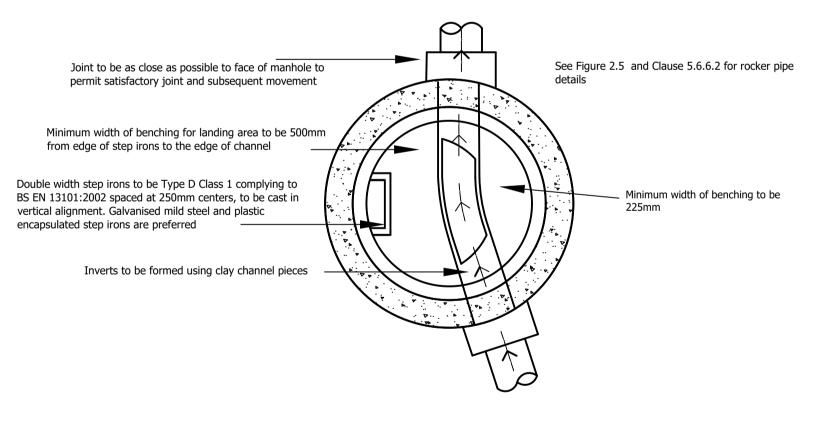
For use on manholes of depth from cover level to soffit of pipe between 3000mm and 6000mm



Section View

Typical Manhole Plan View

Type A and Type B (Design and Construction Guidance)

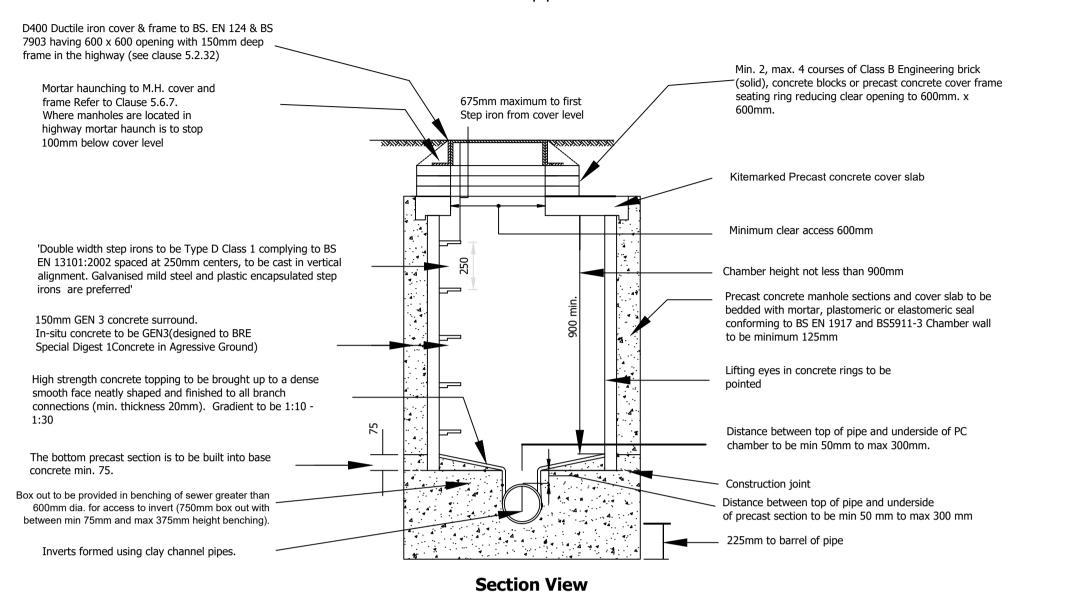


Manhole	Diameters
Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Up to 300	1200
375-450	1350
500-700	1500
750-900	1800
Greater than 900	Specific detailed drawing required

Typical Manhole Construction

Type B (Design and Construction Guidance)

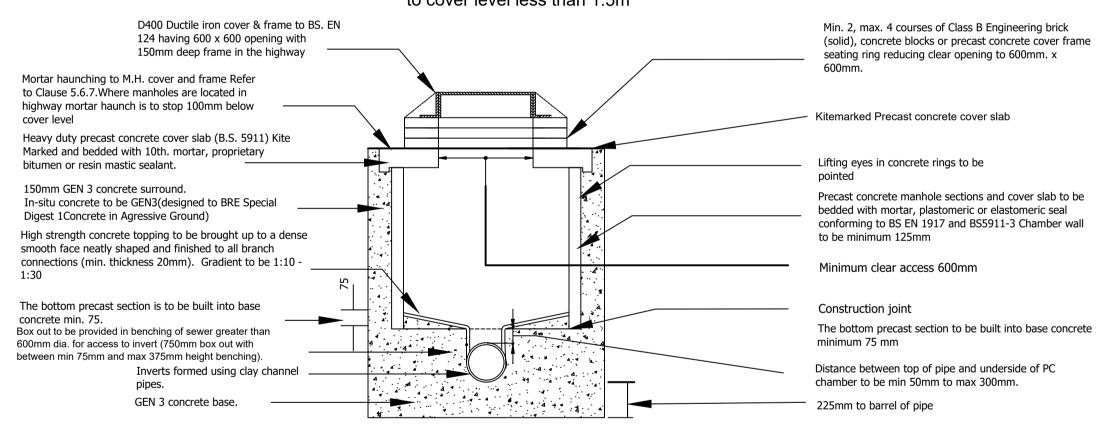
For use on manholes with maximum depth from cover level to soffit of pipe 3000mm



Shallow Manhole Construction

Type C (Design and Construction Guidance)

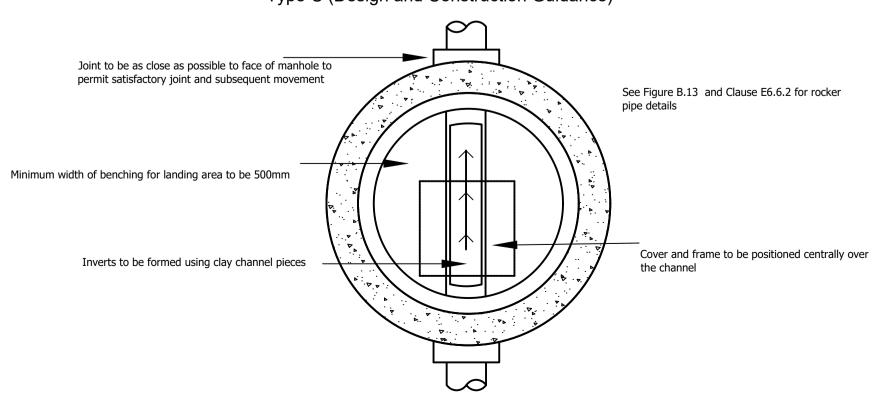
Construction of manhole where depth from soffit to cover level less than 1.5m



Where Type C manholes are 1500mm or greater in diameter a 1220mm x 675mm clear opening is required with a double twin 600mm x 600mm covers is required.

Shallow Manhole Plan View

Type C (Design and Construction Guidance)

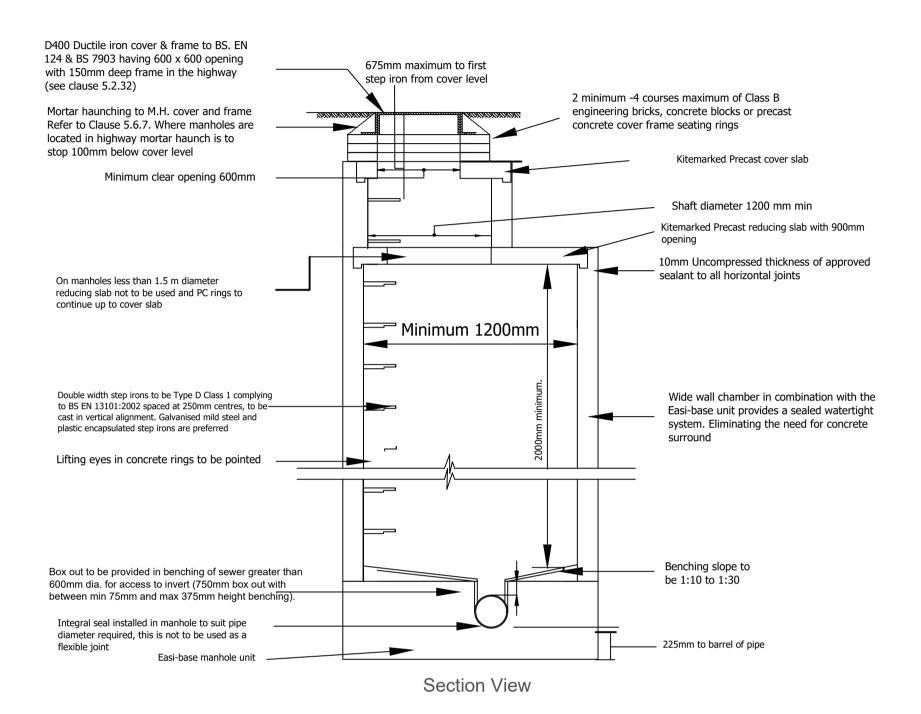


	Yorkshir	e Water Notes
1.	"Code for Adoption". The	and material to be in accordance with Relevant British/European and Yorkshire nents/Addendum to the Mechanical and Titemarked.
2.	Manhole covers shall/must l	have a clear opening of 600mm and shall ith 150mm deep frames in highways.
3.		and consolidated under the supervision orkshire Water before any sewer works are
4.	Yorkshire Water is not oblig run-off into the public sewe (directly or in-directly). An o drainage run-off will therefo	ged to accept filter drain/land drainage er network or adoptable drainage system alternative method of disposal of the land bre be required and you will have to liaise d Drainage Section regarding the disposal
5.		d be a minimum of 1m and manholes 0.5m
6.	Sewers must have 5 metres width of the canopy at matu	s clearance from trees and hedges or the re height.
7.	surround). Where depth of a highways and verges (or le	"S" Bedding (150mm granular bed and cover to top of the sewer is less than 1.2m in ess than 900mm in nonvehicular access to should be provided above granular bed
8.	Bedding and backfill materia Industry Specification 4-08-0	al to conform to the requirement of Water D2 (Table A2).
9.	diameter manhole rings are you use a type "B" manh	at Type "C" brick manholes and 1050mm e not preferred. Instead, it is preferred that hole with 1200mm diameter or 1500mm ning sited over the channel where depth of
10	4-35-01 and BS/EN13476). A maximum 3 metre lengths u to lay longer lengths. Plast	bes to be BSI Kitemarked (certified to WIS doptable plastic sewer pipes to be laid in unless there is a specific operational need ic channel sections in manholes are not Vater would require clay ware channel in
11.	100mm dia. 40KN/m, 150mm 300mm dia. 72KN/m. The r	ength for clay pipes should be as follows: m dia. 40KN/m, 225mm dia. 45KN/m and minimum crushing strength for concrete 20 to EN 1916/BS5911-1 2002). Plastic pipes -01 and BS EN13476.
12	coated in plastic and m	ime has been approved, this must not be ust have lifting eyes suitably sized to fting keys. Screw down covers are not
13		earance at crossovers to accommodate ox. 300mm : if crossover is near the rocker
ea n	ase refer to struction G	nd table references Design and Judance contained for Adoption
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	vision	-
e١	te	01 April 2023
		01 April 2023

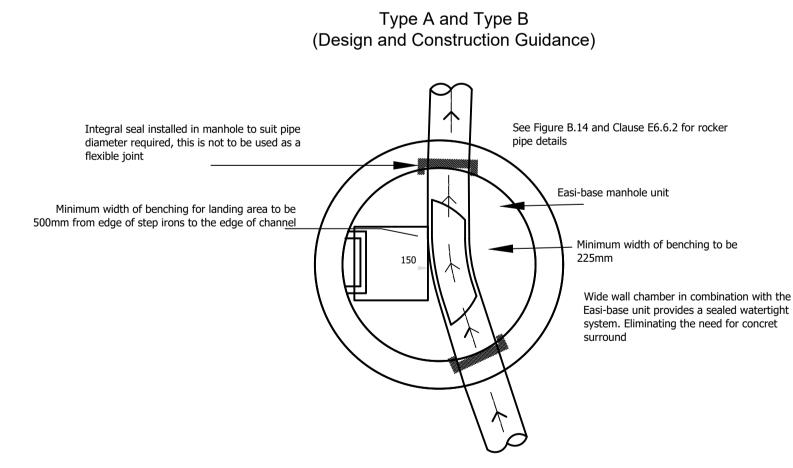
Typical Wide Wall Manhole Construction

Type A Alternative Wide Wall Manhole (Design and Construction Guidance)

For use on manholes of depth from cover level to soffit of pipe between 3000mm and 6000mm.



Typical Wide Wall Manhole Plan View

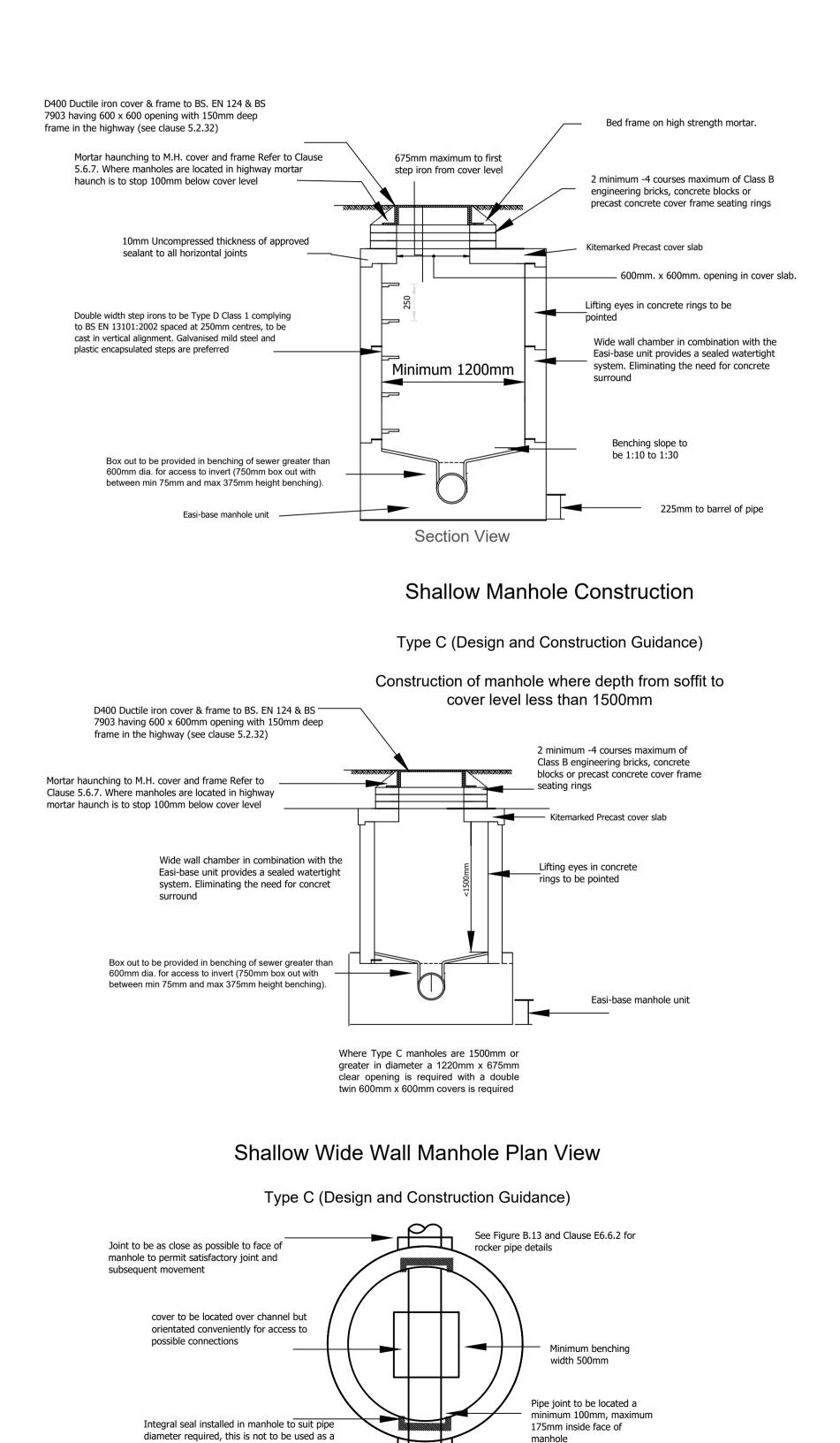


Manhole I	Diameters
Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Up to 300	1200
375-450	1350
500-700	1500
750-900	1800
Greater than 900	Specific detailed drawing required

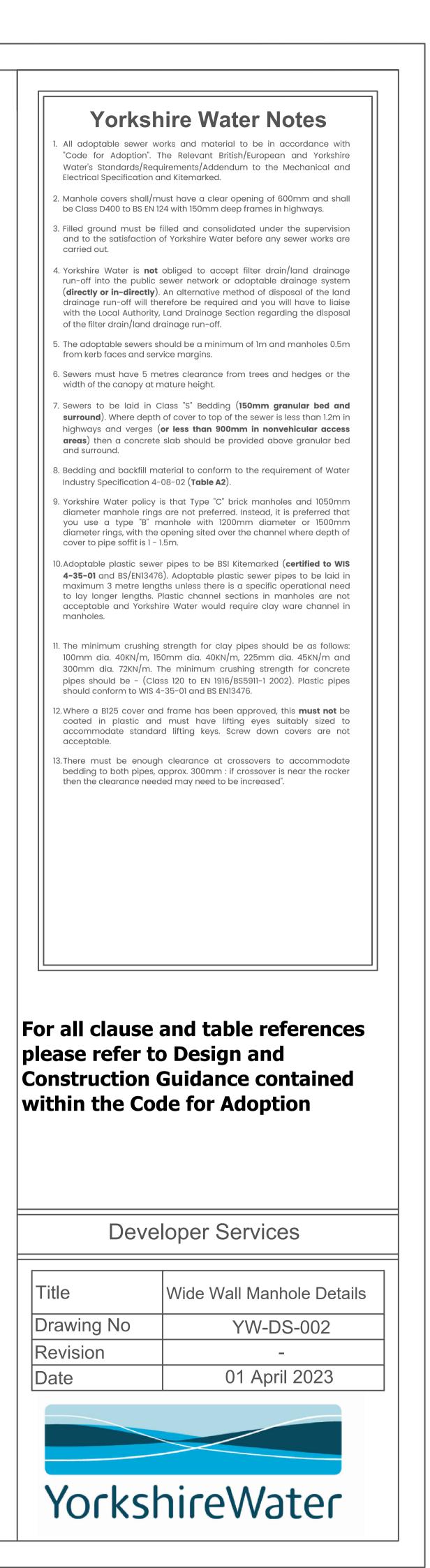
Typical Wide Wall Manhole Construction

Type B Alternative Wide Wall Manhole (Design and Construction Guidance)

For use on manholes with maximum depth from cover level to soffit of pipe 3000mm

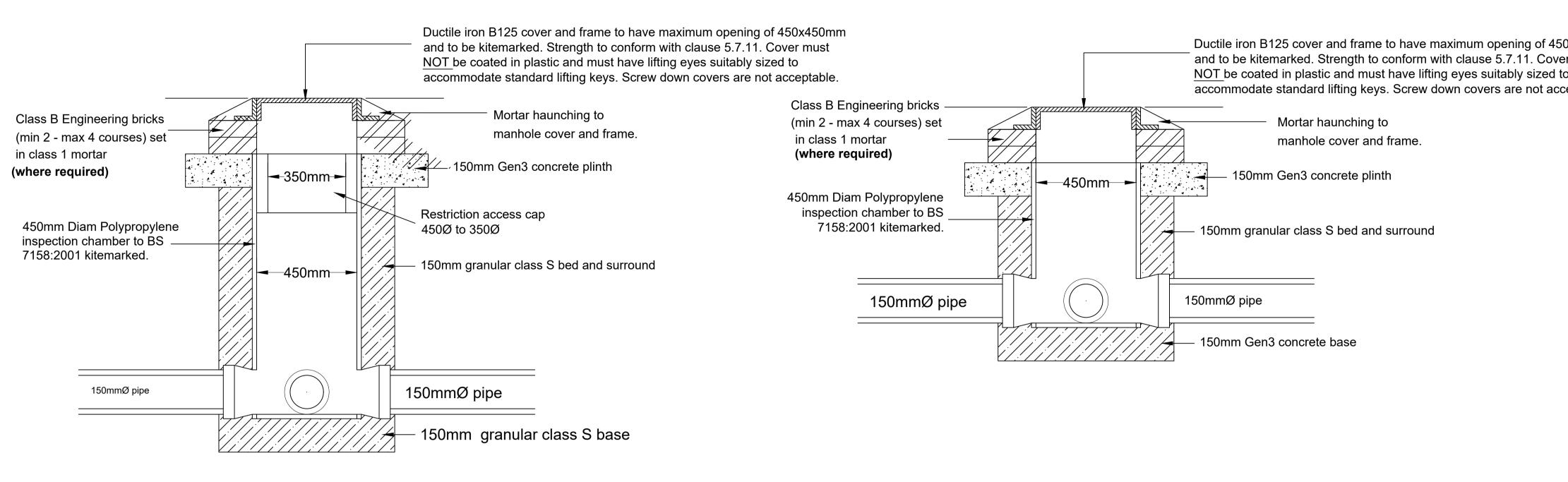


flexible joint



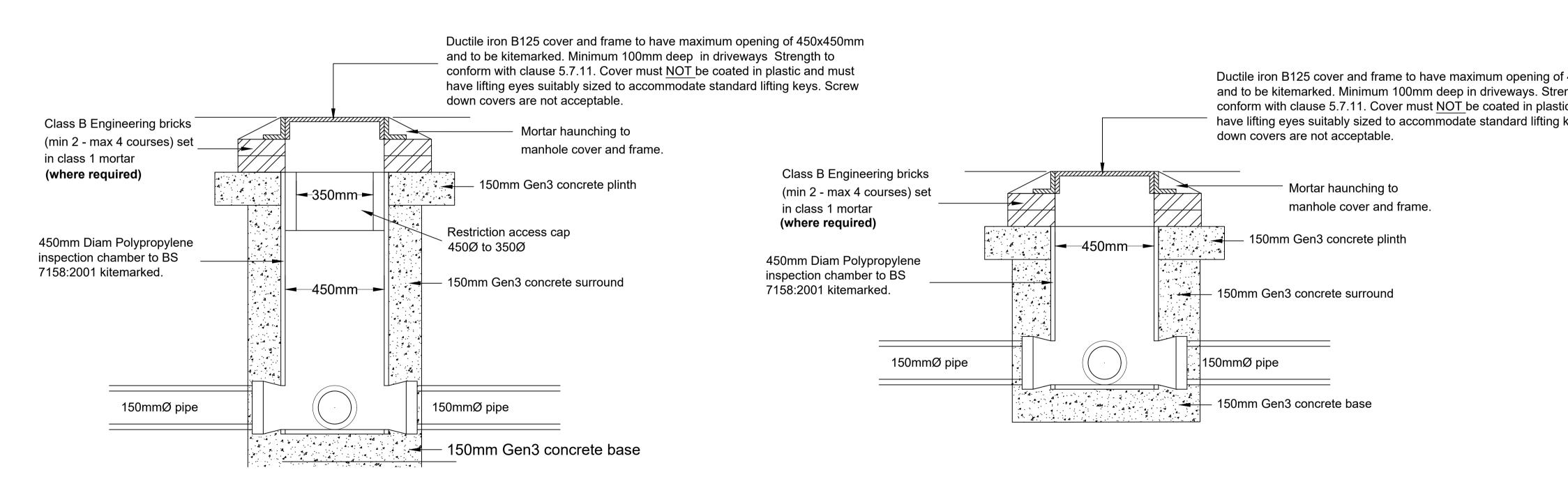
DEMARCATION CHAMBER LOCATED IN GARDENS

For depth of chamber greater than 1200mm maximum depth 3000mm



DEMARCATION CHAMBER LOCATED IN DRIVEWAY

For depth of chamber greater than 1200mm maximum depth 3000mm



Pipes

Diameter (mm)	Gradient	
	Foul	S.W
100	1:80	-
150	1:80	1:80

Vitrified clay pipes to BS EN 295 kitemarked. Unplasticised PVC pipes to BS 4660:200 & BS EN 1401-1 kitemarked. Structured Wall Unplasticisd PVC pipes to WIS 4-35-01 kitemarked.

Demarcation Chamb	er Covers and Frames
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Surface	Class (Loading in kN)	Loading	Loca
Road	D400	Vehicle Impact	Garde
Footway & Driveway	B125	Occasional vehicle loading	Agric
Gardens	B125	Pedestrian/cyclist	Drive

DEMARCATION CHAMBER LOCATED IN GARDENS

For depth of chamber from cover level to invert level of pipe chamber less than 1200mm

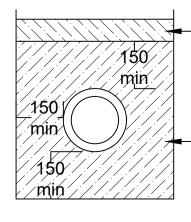
DEMARCATION CHAMBER LOCATED IN DRIVEWAY

For depth of chamber from cover level to invert level of pipe chamber less than 1200mm

Minimum Depth of Lateral Drains

tion	Minimum Depth (m)
ens	0.9
ultural/Open spaces	0.9
ways (trafficked areas)	1.2 (see detail)

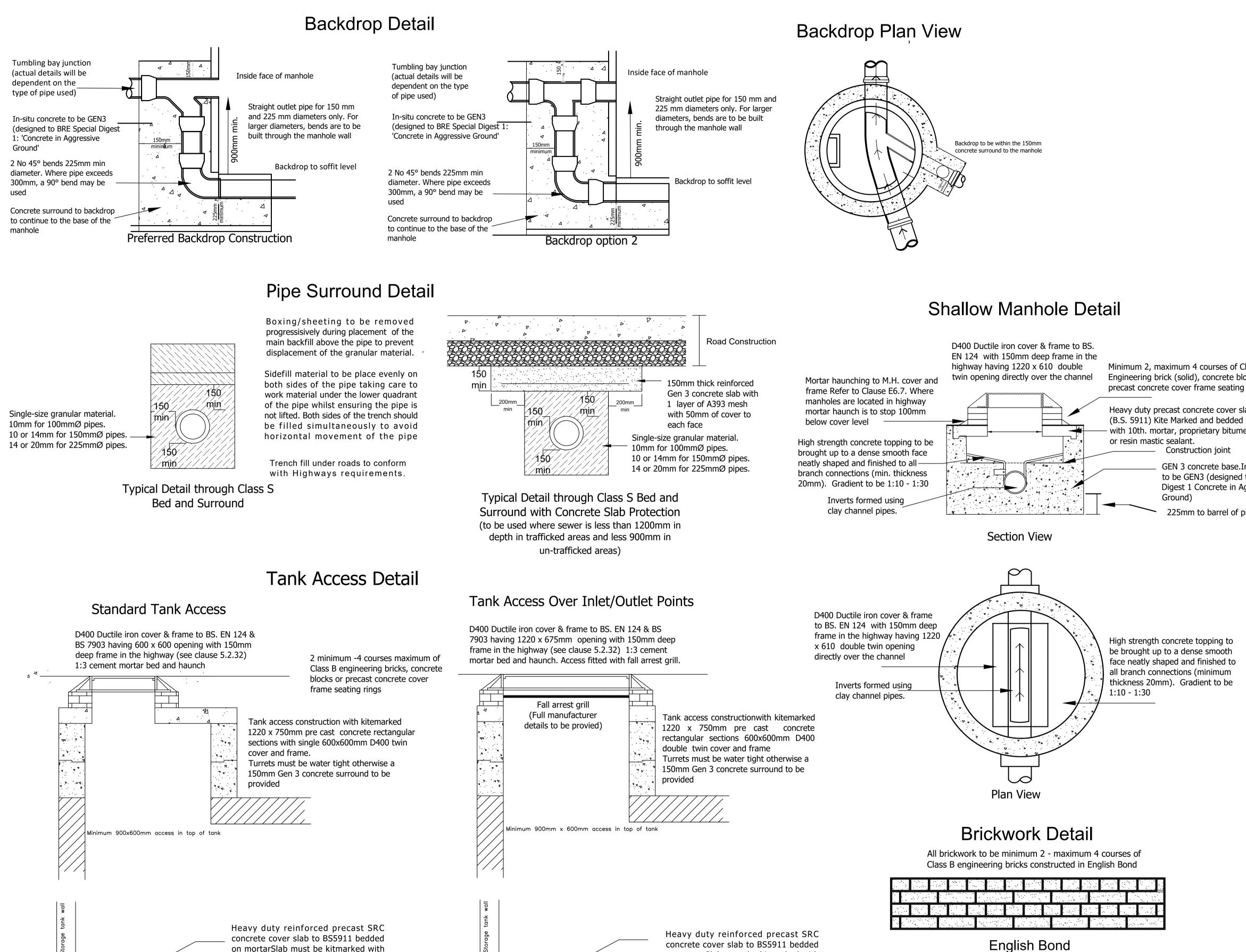
LATERAL DRAIN BEDDING DETAIL

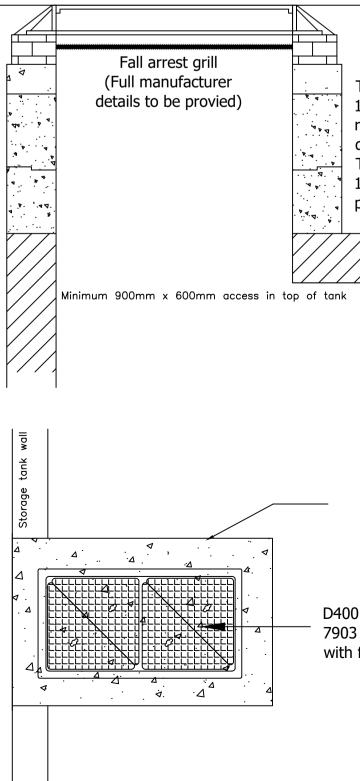


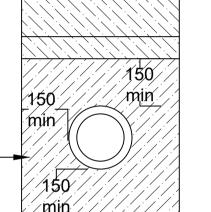
Trench fill under roads to conform with Highways requirements.

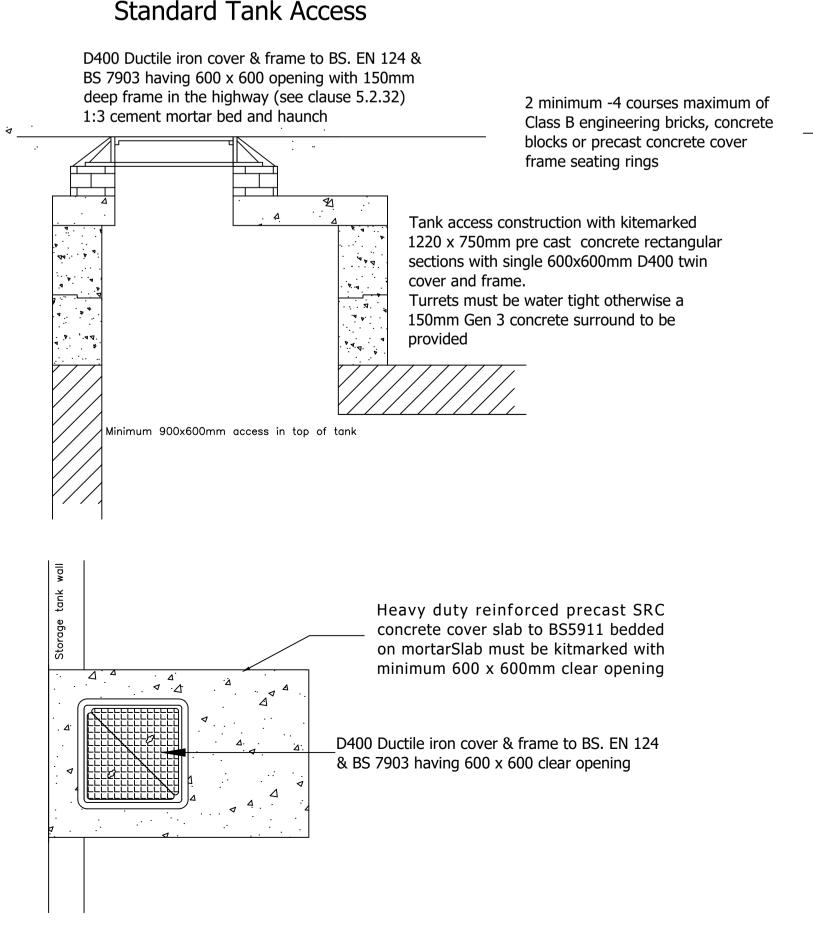
Single-size granular material. 10mm for 100mmØ pipes. 10 or 14mm for 150mmØ pipes.

	Yorkshire Water Notes
	 All adoptable sewer works and material to be in accordance with "Code for Adoption". The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked.
	2. Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
	3. Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are
	 4. Yorkshire Water is not obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (directly or in-directly). An alternative method of disposal of the land drainage run-off will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section regarding the disposal of the filter drain/land drainage run-off.
	 The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerb faces and service margins.
	6. Sewers must have 5 metres clearance from trees and hedges or the width of the canopy at mature height.
	7. Sewers to be laid in Class "S" Bedding (150mm granular bed and surround). Where depth of cover to top of the sewer is less than 1.2m ir highways and verges (or less than 900mm in nonvehicular access areas) then a concrete slab should be provided above granular bed and surround.
	8. Bedding and backfill material to conform to the requirement of Wate Industry Specification 4-08-02 (Table A2).
	9. Yorkshire Water policy is that Type "C" brick manholes and 1050mm diameter manhole rings are not preferred. Instead, it is preferred tha you use a type "B" manhole with 1200mm diameter or 1500mm diameter rings, with the opening sited over the channel where depth o cover to pipe soffit is 1 - 1.5m.
	10.Adoptable plastic sewer pipes to be BSI Kitemarked (certified to WIS 4-35-01 and BS/EN13476). Adoptable plastic sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer lengths. Plastic channel sections in manholes are no acceptable and Yorkshire Water would require clay ware channel in manholes.
	 The minimum crushing strength for clay pipes should be as follows 100mm dia. 40KN/m, 150mm dia. 40KN/m, 225mm dia. 45KN/m and 300mm dia. 72KN/m. The minimum crushing strength for concrete pipes should be - (Class 120 to EN 1916/BS5911-1 2002). Plastic pipes should conform to WIS 4-35-01 and BS EN13476.
	12. Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are no acceptable.
	13. There must be enough clearance at crossovers to accommodate bedding to both pipes, approx. 300mm : if crossover is near the rocket then the clearance needed may need to be increased".
p	or all clause and table reference lease refer to Design and construction Guidance contained vithin the Code for Adoption
	Developer Services
	Typical Demarcation
	Title Typical Demarcation Chambers
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	Title Typical Demarcation Chambers Drawing No YW-DS-003 Revision -
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	Title Typical Demarcation Chambers Drawing No YW-DS-003 Revision -



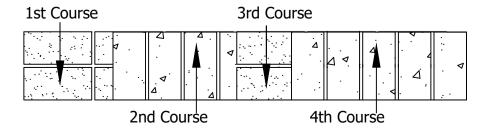






on mortarSlab must be kitmarked with minimum 1220 x 675mm clear opening

D400 Ductile iron cover & frame to BS. EN 124 & BS 7903 having 1220 x 675mm clear opening. Access fitted with fall arrest grill.



Brickwork Plan View

 All adoptable sever works and material to be in accordance 'Code' for Adoption'. The Relevant British/European and Yor Water's Standards/Requirements/Addendum to the Mechanica Electrical Specification and Kitemarked. Manhole covers shall/must have a clear opening of 600mm and be Class D400 to BS EN 124 with ISOmm deep frames in highways. Filled ground must be filled and consolidated under the super and to the satisfaction of Yorkshire Water before any sever work carried out. Yorkshire Water is not obliged to accept filter drain/land dra run-off into the public sever network or adoptable drainages (directly or In-directly). An alternative method of disposal of the drainage run-off will therefore be required and you will have to with the Local Authority. Land Drainage Section regarding the dis of the filter drain/land drainage run-off. The adoptable severs should be a minimum of Im and manholes from kerb faces and service margins. Severs must have 5 metres clearance from trees and hedges u width of the canopy at mature height. Severs to be loid in Class 'S' Bedding (160mm granular bed surround). Where depth of cover to top of the sever is less than 1 highways and verges (or less than 900mm in nonvehicular a arreas) then a concrete slab should be provided above granula and surround. Bedding and backfill material to conform to the requirement of industry Specification 4-08-02 (Table A2). Yorkshire Water policy is that Type 'C' brick manholes and 102 diameter manhole rings are not preferred. Instead, it is preferrel you use a type 'B' manhole with 1200mm diameter or 155 diameter rings, with the opening sited over the channel where de cover to pips soffit is 1-15m. Adoptable plastic sever pipes to be BSI Kitemarked (certified t 4-35-01 and 85/KillA26). Adoptable plastic sever pipes to be maximum 3 metre lengths unless there is a specific operational to lay forger lengths. Plastic channel s	sh/European and Yorksh lum to the Mechanical of opening of 600mm and sh ep frames in highways. dated under the supervise before any sewer works of filter drain/land drained adoptable drainage syst ethod of disposal of the lo d and you will have to lice ection regarding the dispo- um of 1m and manholes 0. om trees and hedges or (150mm granular bed o the sewer is less than 1.2n mm in nonvehicular acc rovided above granular k to the requirement of Wo d. Instead, it is preferred t Dmm diameter or 1500r r the channel where depth Kitemarked (certified to V tic sewer pipes to be laid a specific operational ne ctions in manholes are equire clay ware channel pipes should be as follo n, 225mm dia. 45KN/m o shing strength for concr BS5911-1 2002). Plastic pip 3476. approved, this must not ng eyes suitably sized crew down covers are
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