

Typical Manhole Details

April 2024



YorkshireWater

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

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.
- 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.
- Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.
- 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.
- Sewers must have 5 metres clearance from trees and hedges or the width of the canopy at mature height.
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- Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (**Table A2**).
- Yorkshire Water policy is that Type "C" brick manholes and 1050mm diameter manhole rings are not preferred. Instead, it is preferred that you use a type "B" manhole with 1200mm diameter or 1500mm diameter rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m.
- 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 not acceptable and Yorkshire Water would require clay ware channel in manholes.
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- 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 not acceptable.
- There must be enough clearance at crossovers to accommodate bedding to both pipes, approx. 300mm : if crossover is near the rocker then the clearance needed may need to be increased".

For all clause and table references please refer to Design & Construction Guidance contained within the Code for Adoption

Developer Services

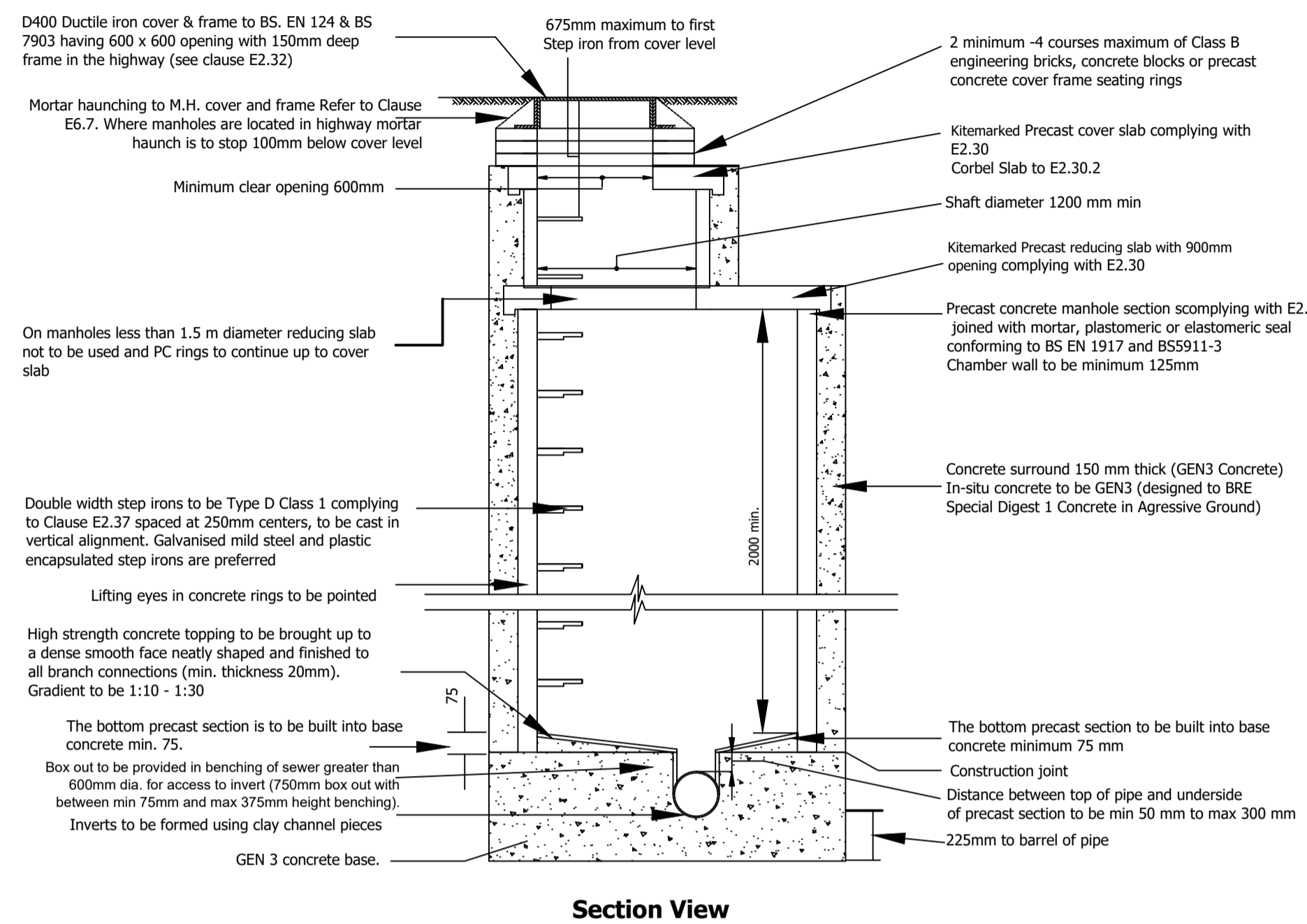
Title	Typical Manhole Details
Drawing No	YW-DS-001
Revision	-
Date	01/04/2024



Typical Manhole Construction

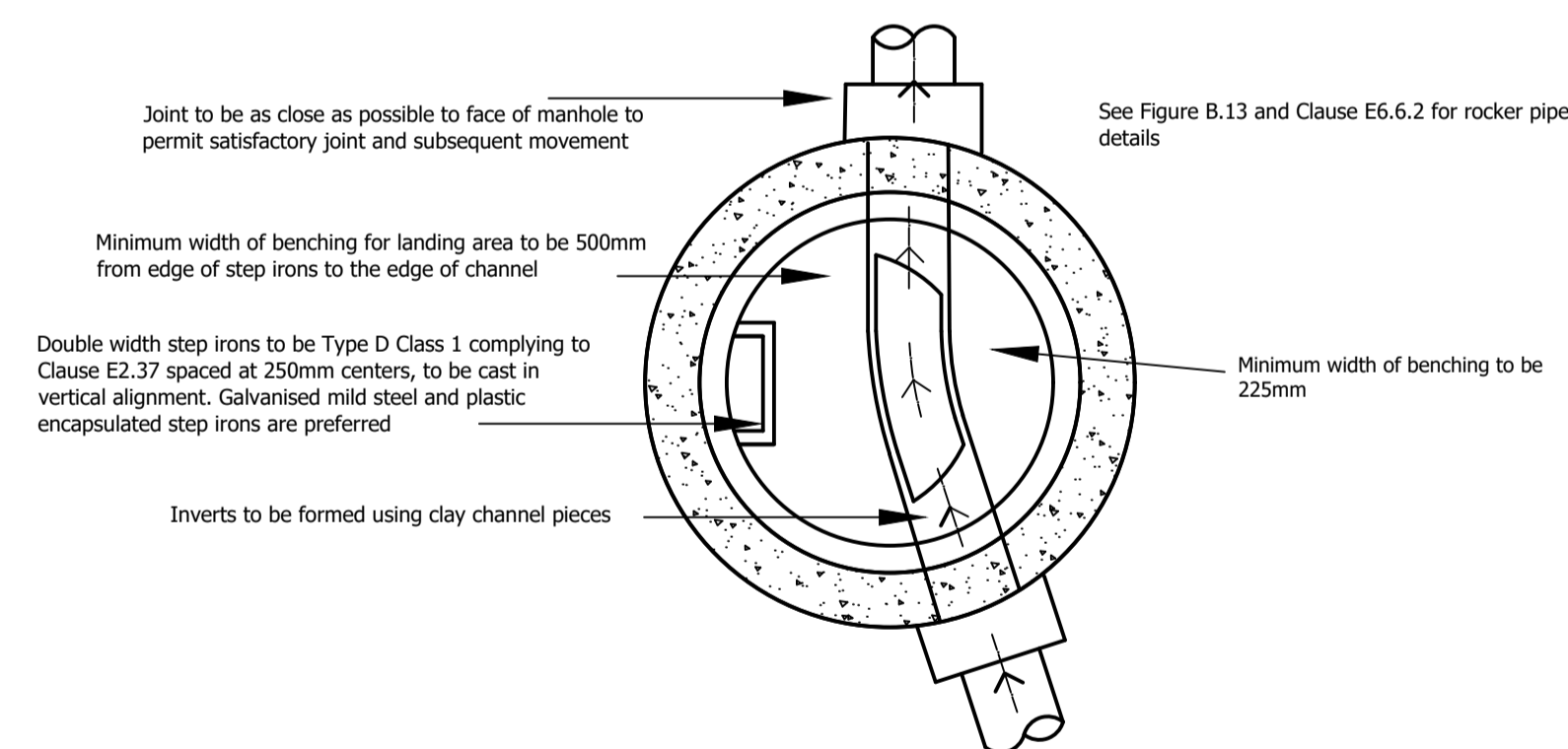
Type A1 (Design and Construction Guidance)

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



Typical Manhole Plan View

Type A and B (Design and Construction Guidance)

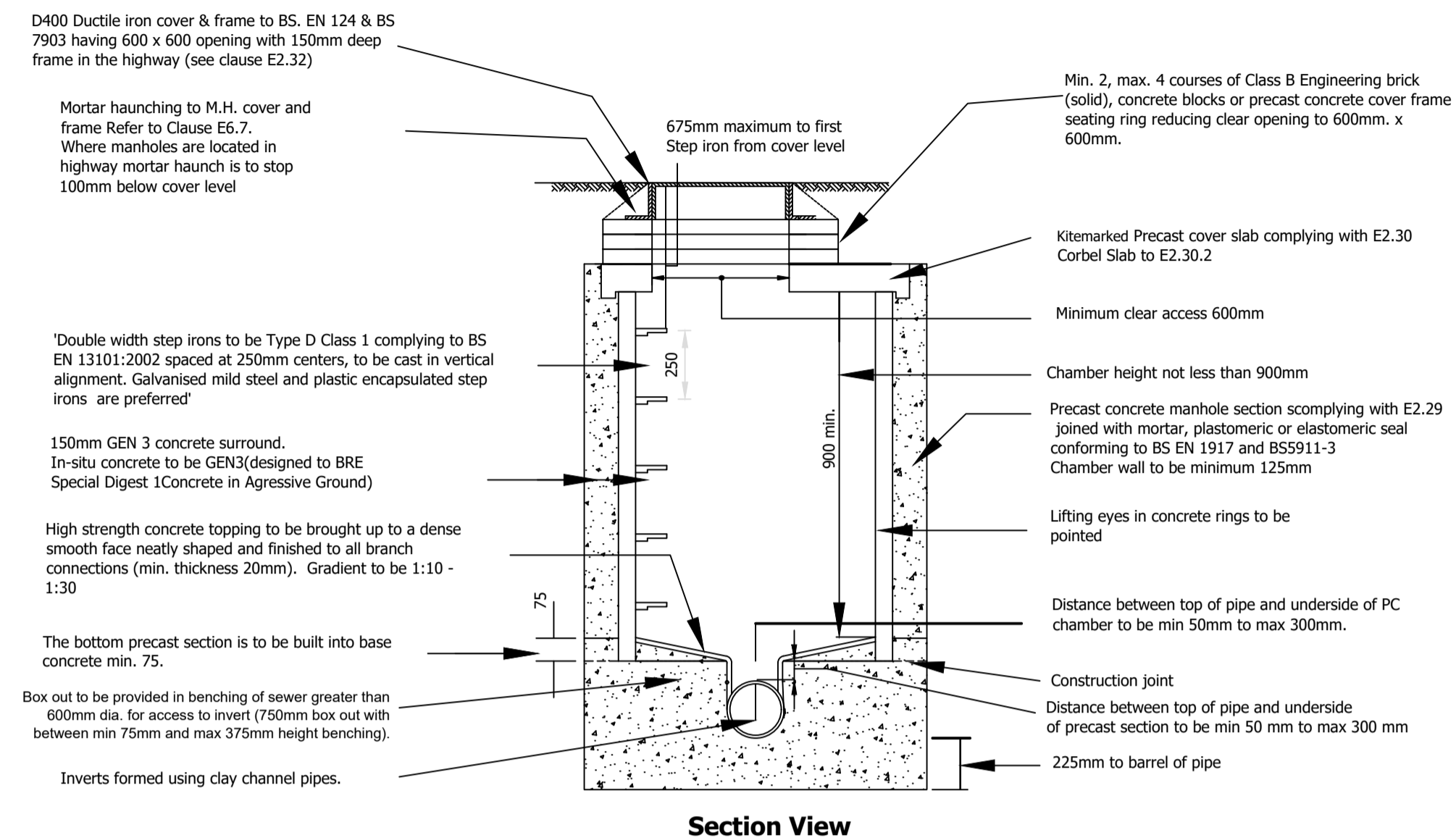


Manhole Diameters	
Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Up to 300	1200
375-450	1350
500-700	1500
750-900	1800
Greater than 900	Specific detailed drawing required

Typical Manhole Construction

Type B (Design and Construction Guidance)

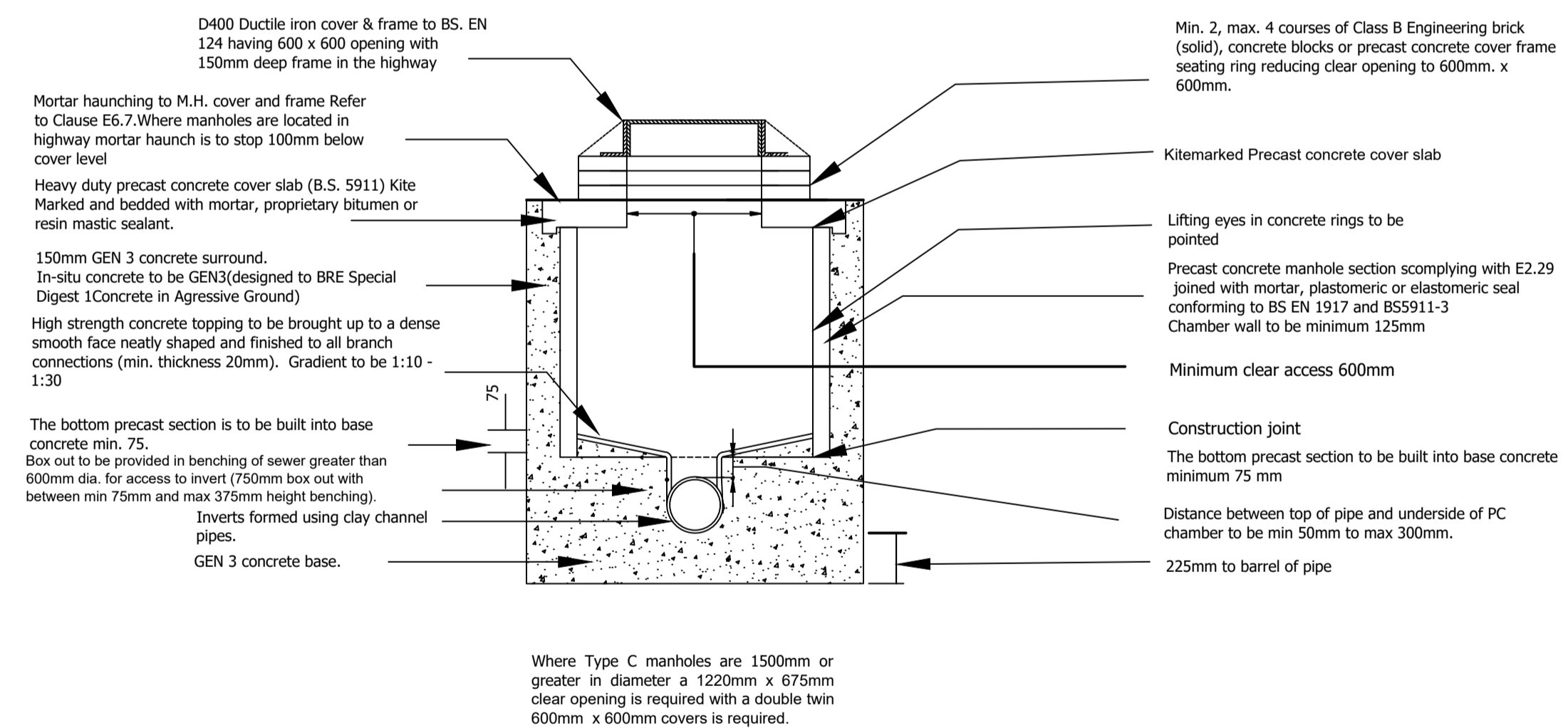
Maximum depth from cover level to soffit of pipe 3000mm



Shallow Manhole Construction

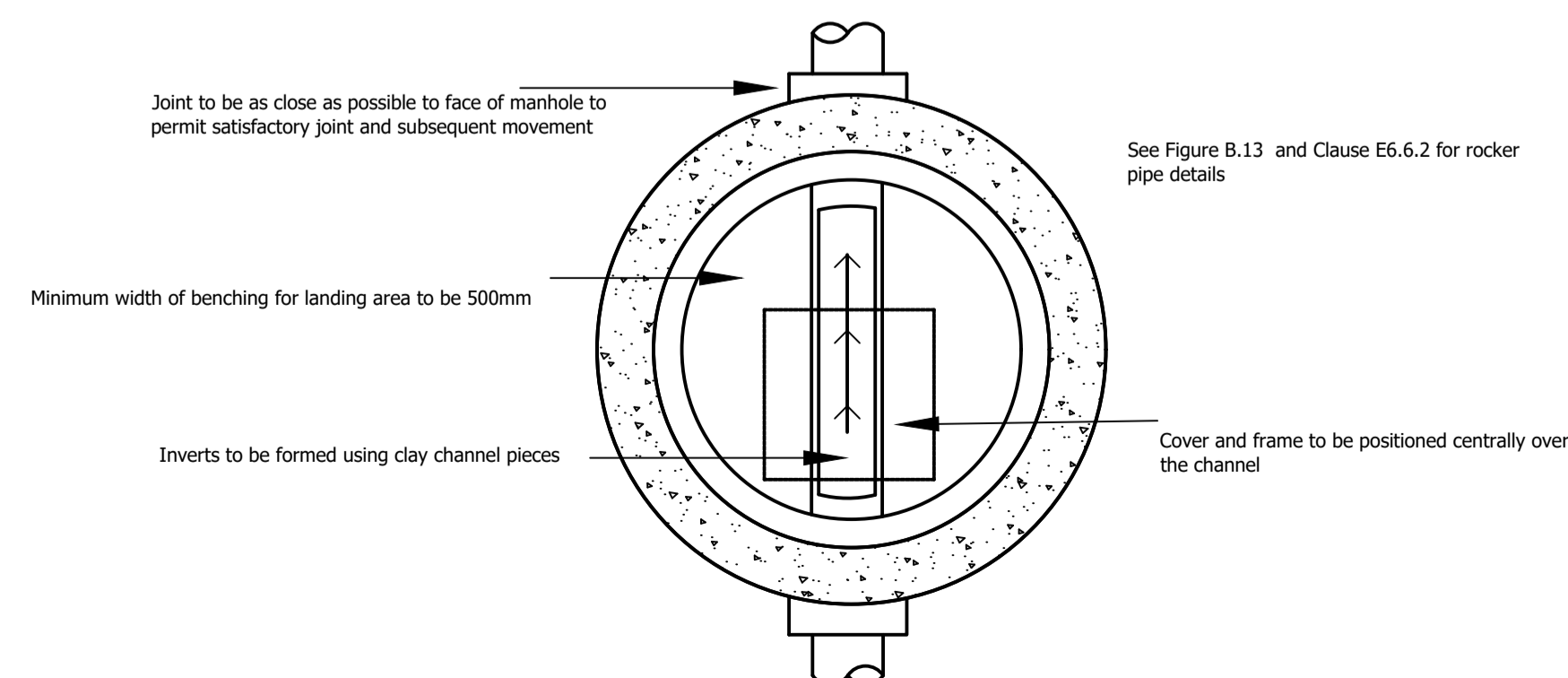
Type C (Design and Construction Guidance)

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



Shallow Manhole Plan View

Type C (Design and Construction Guidance)

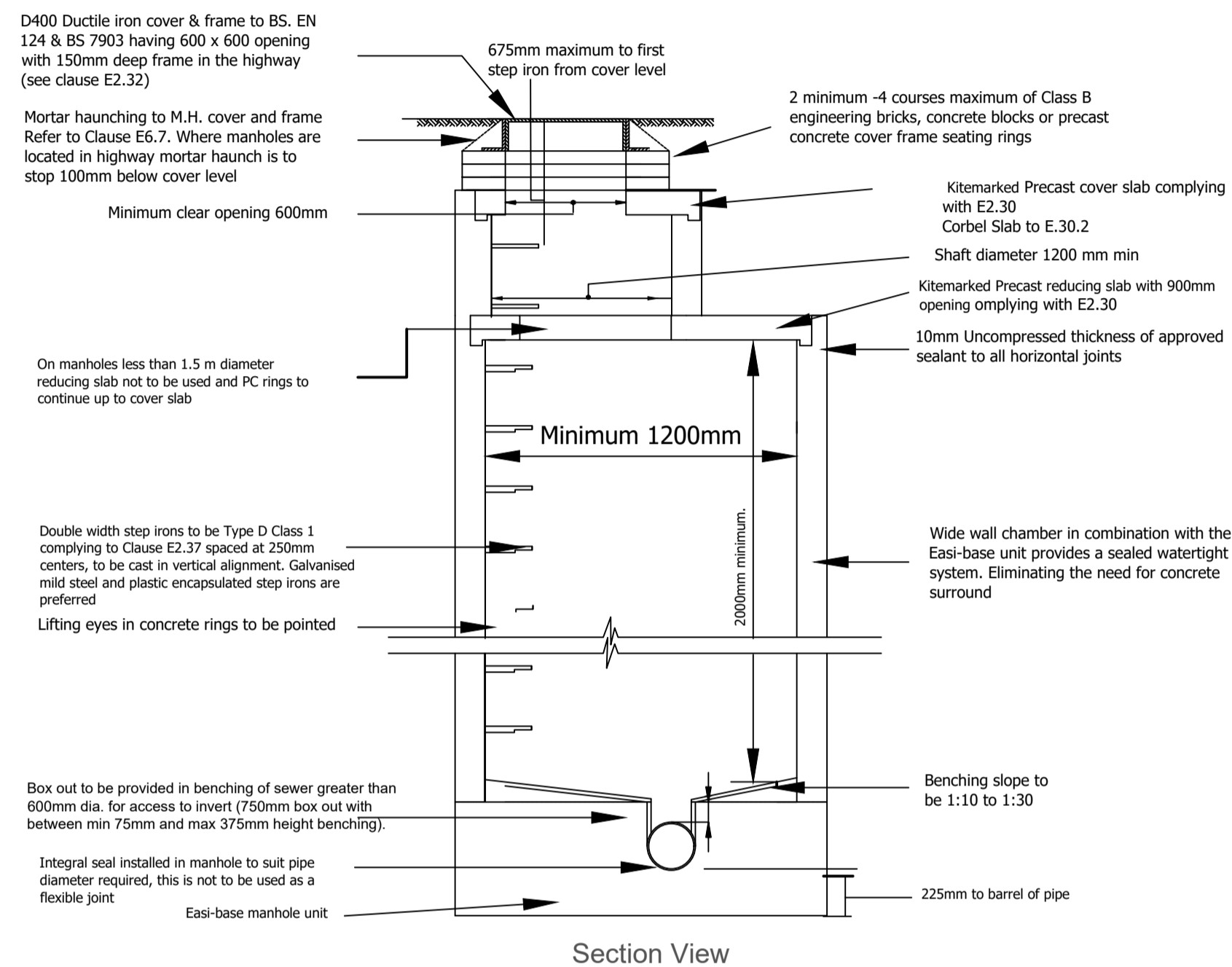


Yorkshire Water Notes

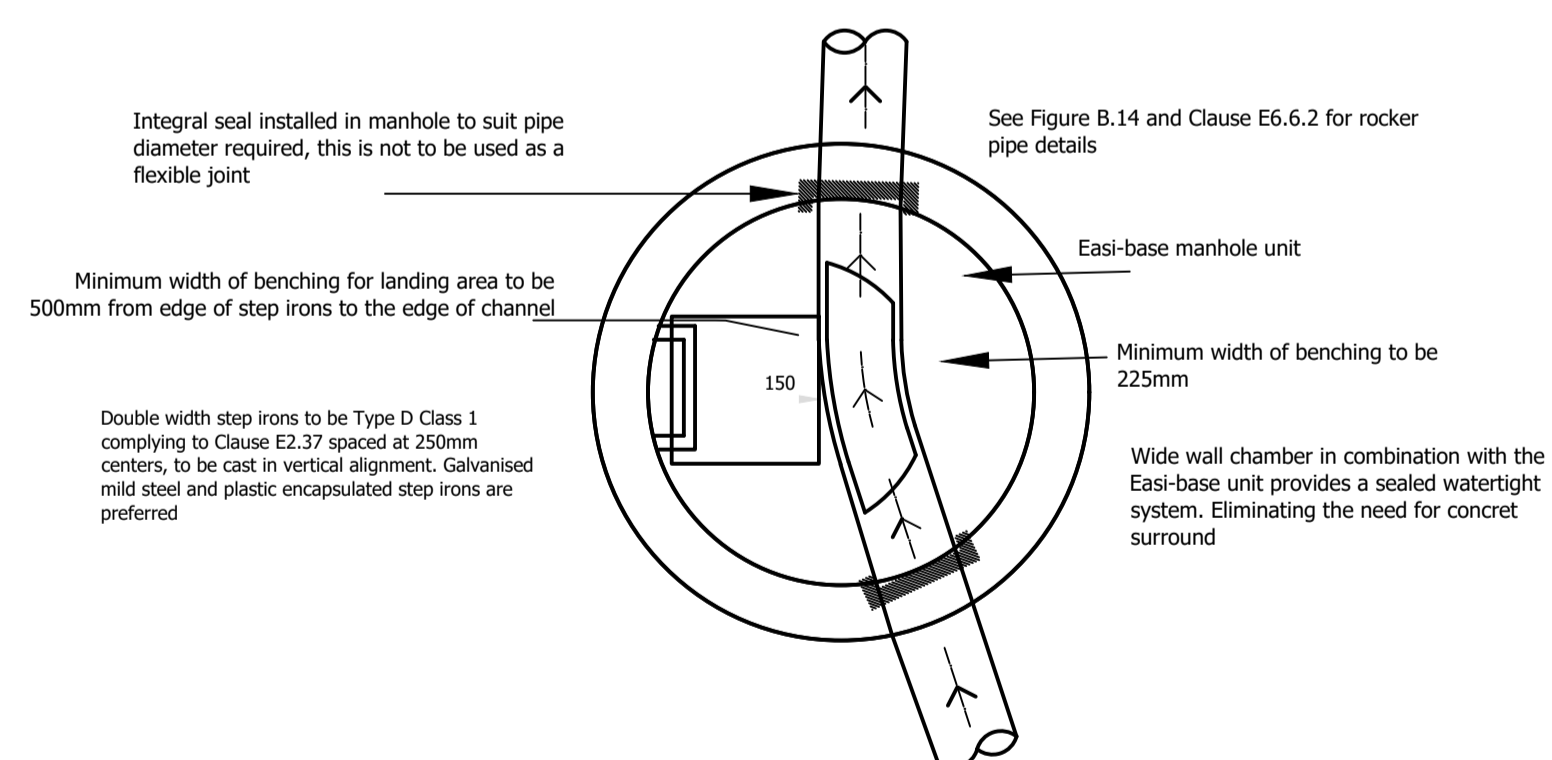
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- Manhole covers shall/must have a clear opening of 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
- Filled ground must be filled and consolidated under the supervision and to the satisfaction of Yorkshire Water before any sewer works are carried out.
- 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.
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- Sewers must have 5 metres clearance from trees and hedges or the width of the canopy at mature height.
- 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 in highways and verges (**or less than 900mm in nonvehicular access areas**) then a concrete slab should be provided above granular bed and surround.
- Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (**Table A2**).
- Yorkshire Water policy is that Type "C" brick manholes and 1050mm diameter manhole rings are not preferred. Instead, it is preferred that you use a type "B" manhole with 1200mm diameter or 1500mm diameter rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m.
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- There must be enough clearance at crossovers to accommodate bedding to both pipes, approx. 300mm; if crossover is near the rocker then the clearance needed may need to be increased.

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

For use on manholes of depth from cover level to soffit level between 3000mm and 6000mm.
Wide wall manhole ring construction



Typical Widewall Manhole Plan View Type C (Design and Construction Guidance)

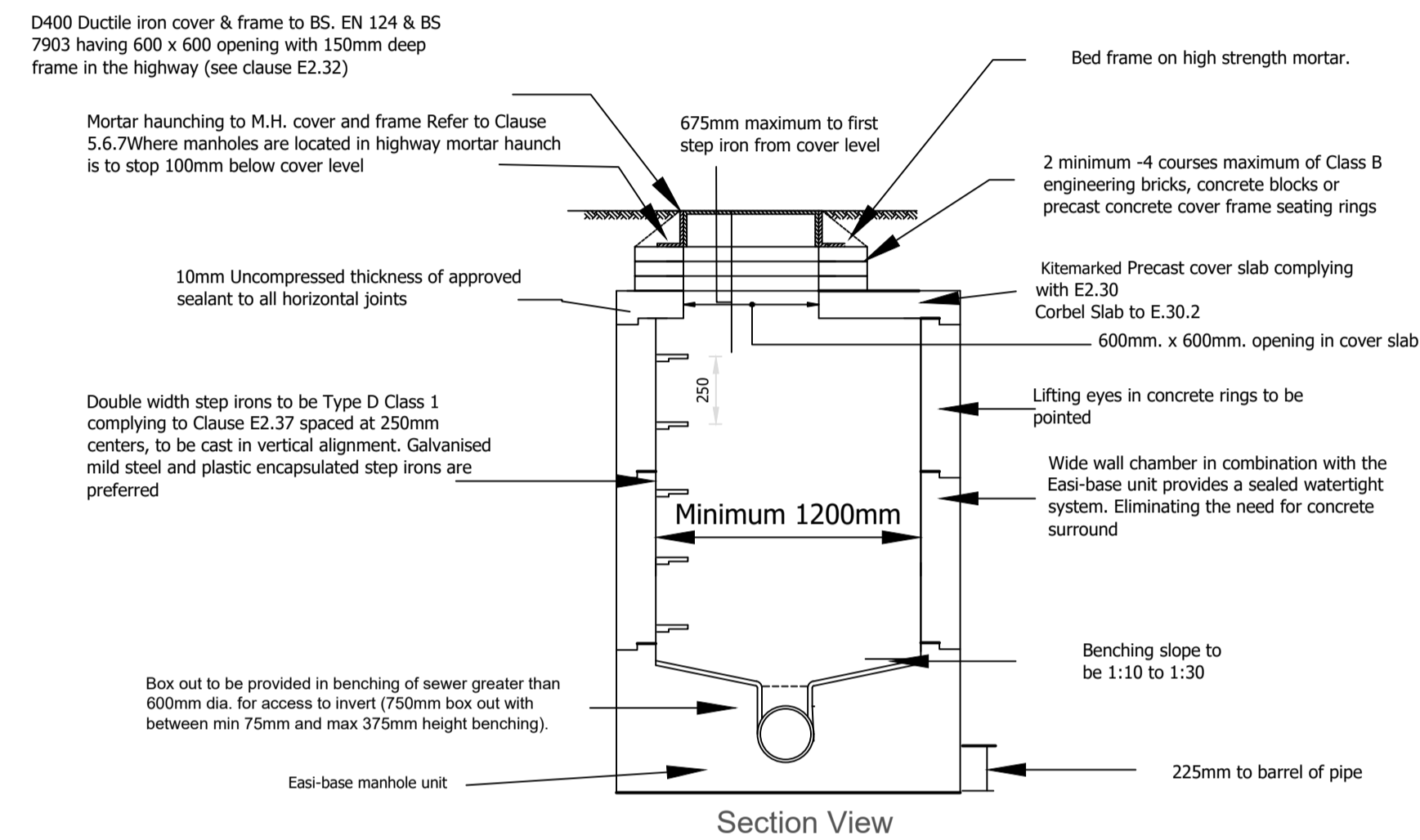


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Nominal internal diameter of largest pipe in manhole (mm)	Minimum nominal internal dimension of manhole (mm)
Up to 300	1200
375-450	1350
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750-900	1800
Greater than 900	Specific detailed drawing required

PLEASE NOTE WHERE MANHOLES HAVE BACKDROP CONNECTIONS A FULL 150MM CONCRETE SURROUND TO THE MANHOLE IS REQUIRED

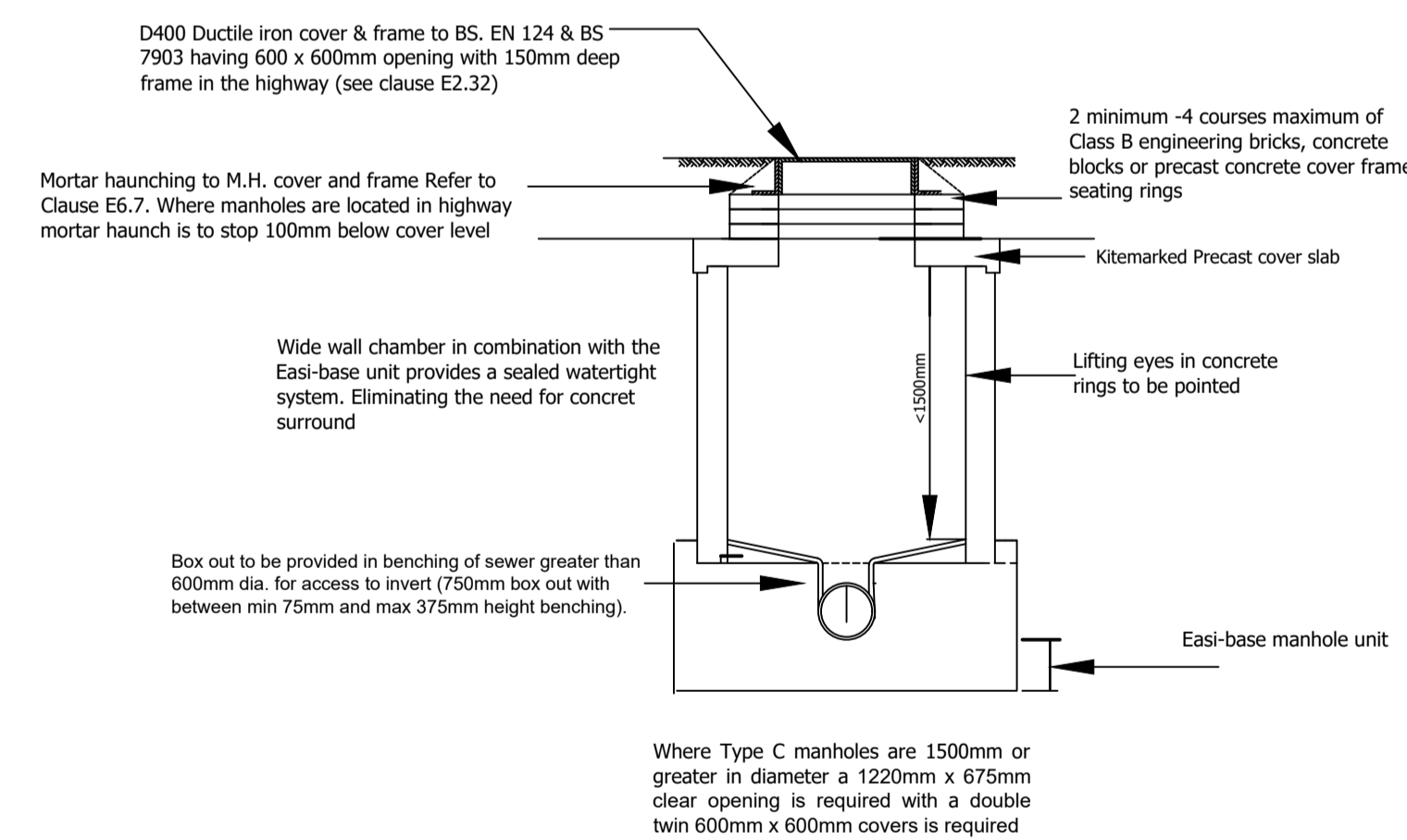
Typical Widewall Manhole Construction Alternative Wide Wall Manhole Type C (Design and Construction Guidance)

Maximum depth from cover level to soffit of pipe 3000mm
Wide wall manhole ring construction

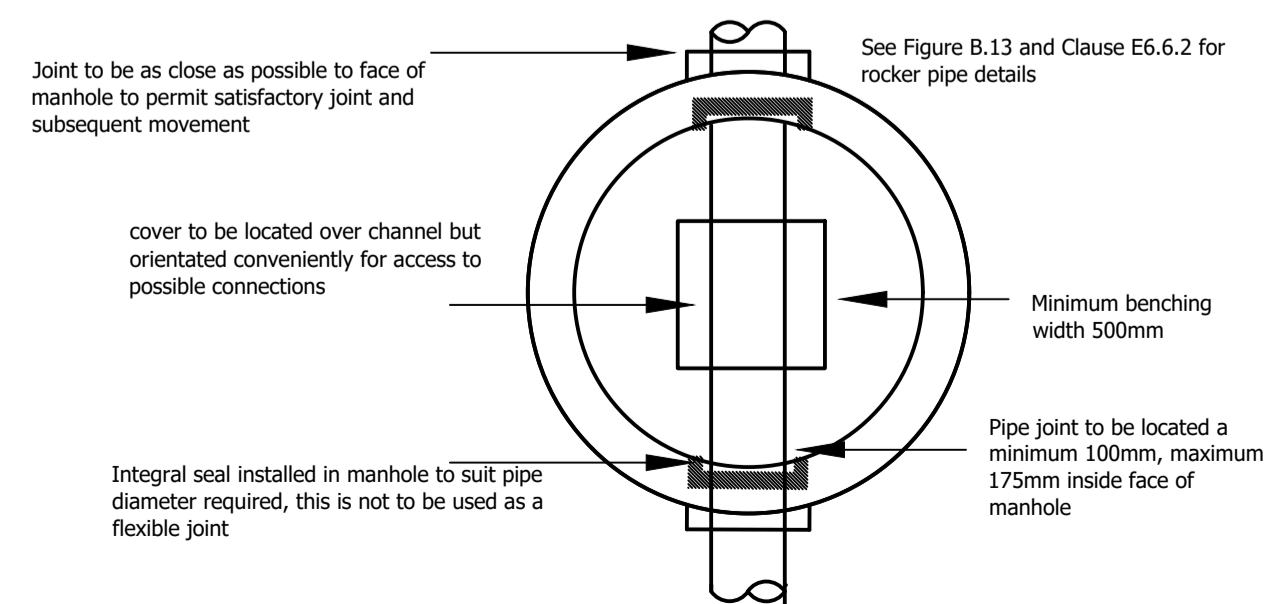


Shallow Manhole Construction Type C (Design and Construction Guidance)

Construction of manhole where depth from soffit to cover level less than 1500mm



Shallow Widewall Manhole Plan View Type C (Design and Construction Guidance)



For all clause and table references please refer to Design & Construction Guidance contained within the Code for Adoption

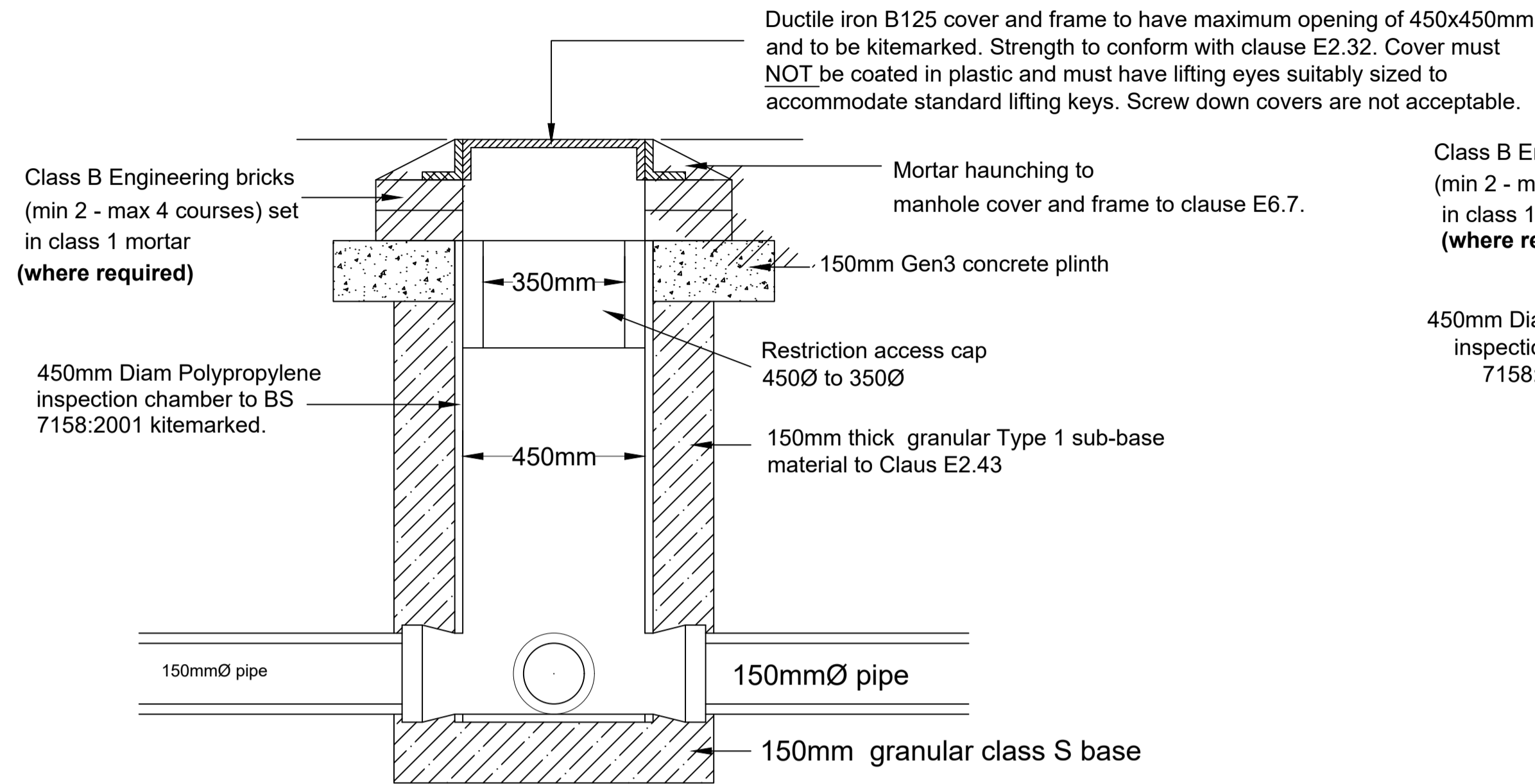
Developer Services

Title	Widewall Manhole Details
Drawing No	YW-DS-002
Revision	-
Date	01/04/2024



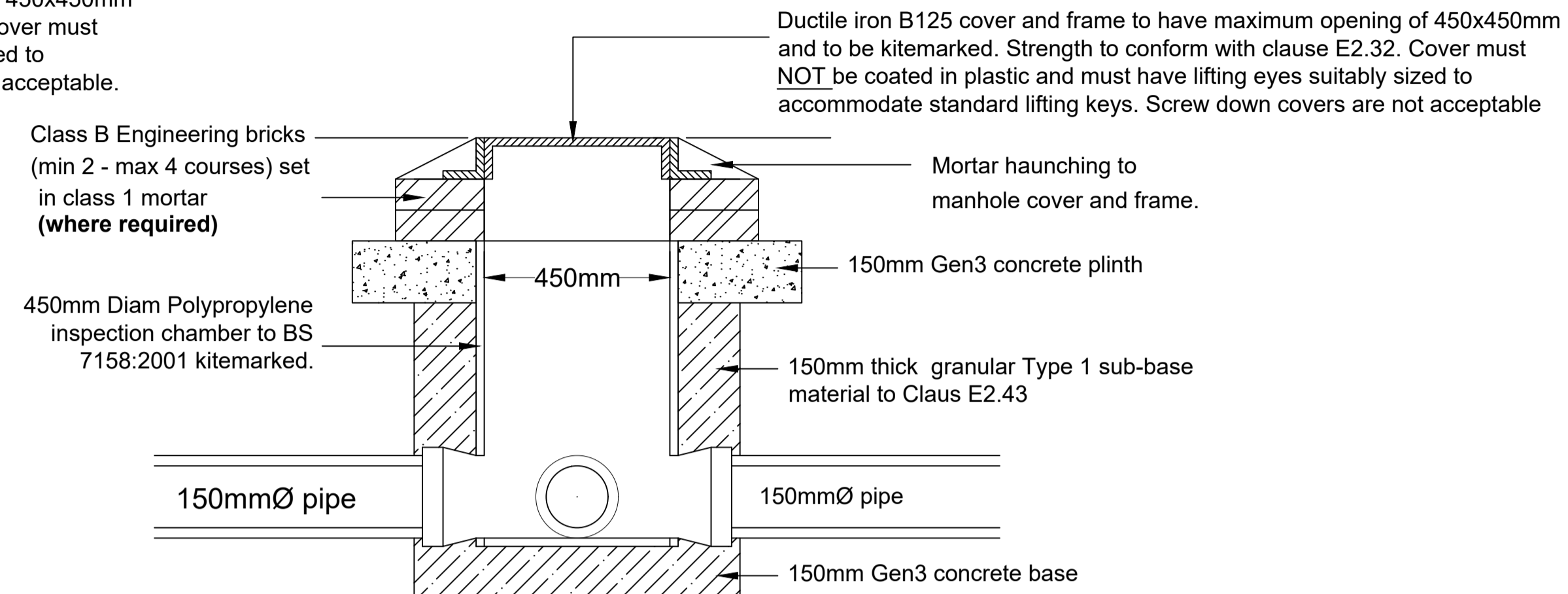
DEMARCATON CHAMBER LOCATED IN GARDENS

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



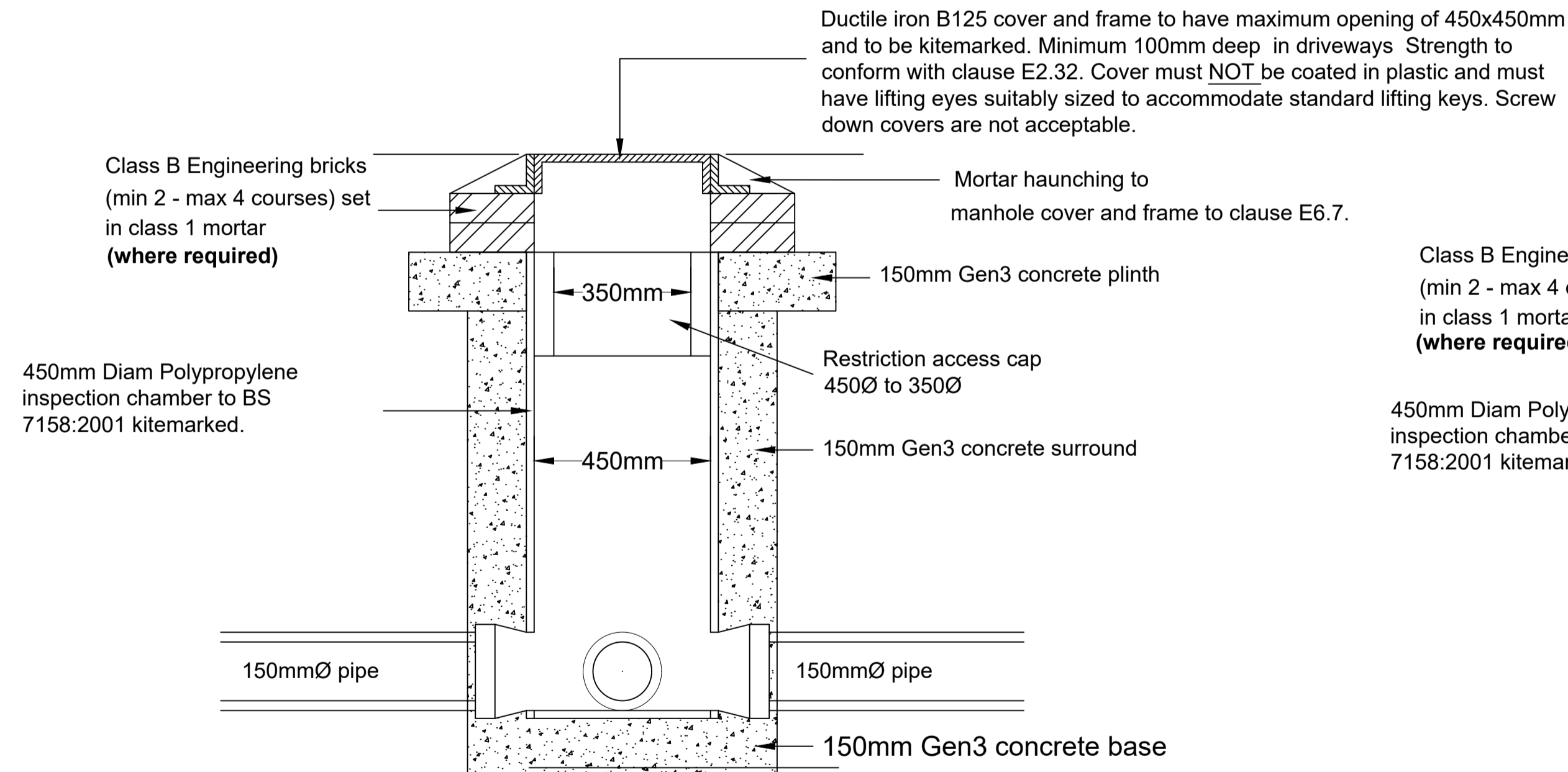
DEMARCATON CHAMBER LOCATED IN GARDENS

Depth from cover level to invert level of pipe chamber less than 1200mm.



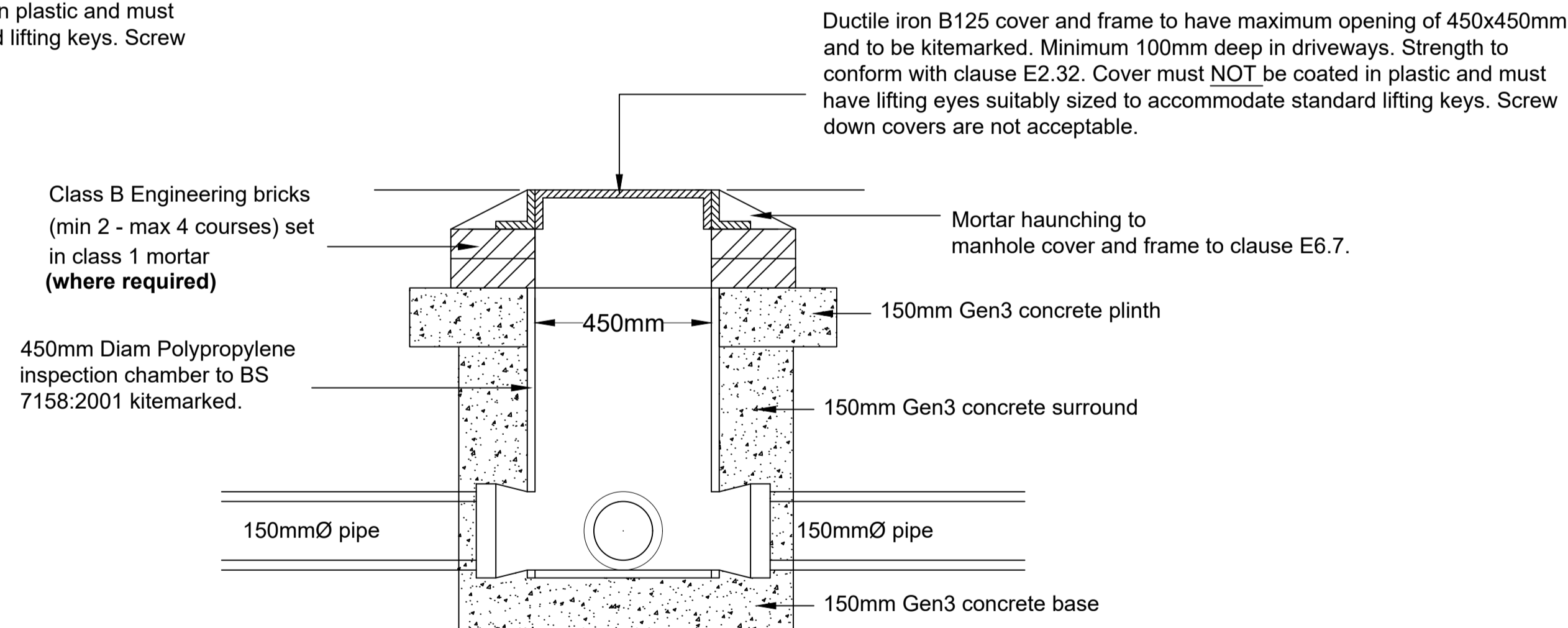
DEMARCATON CHAMBER LOCATED IN DRIVEWAY

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



DEMARCATON CHAMBER LOCATED IN DRIVEWAY

Depth from cover level to invert level of pipe chamber less than 1200mm.



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 Unplasticised PVC pipes to WIS 4-35-01 kitemarked.

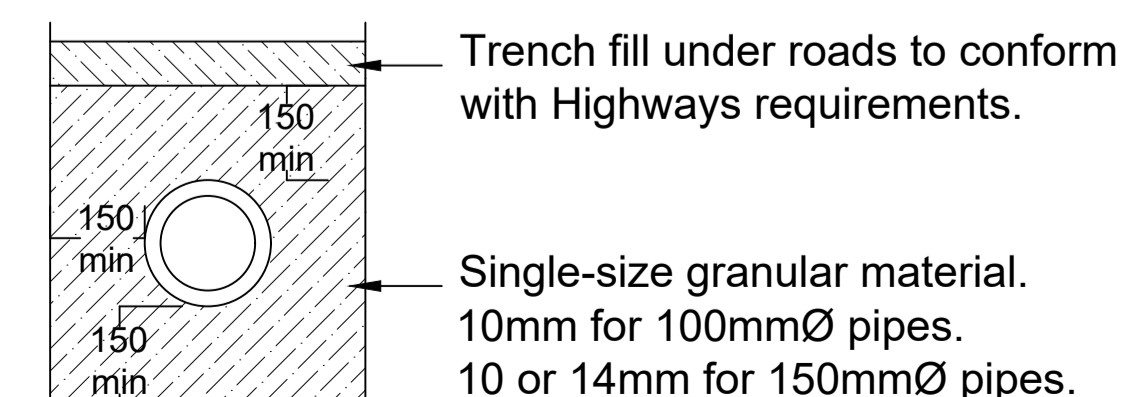
Demarcation chamber covers & frames

Surface	Class (Loading in kN)	Loading
Road	D400	Vehicle Impact
Footway & Driveway	B125	Occasional vehicle loading
Gardens	B125	Pedestrian/cyclist

Minimum depth of Lateral drains

Location	Minimum Depth (m)
Gardens	0.9
Agricultural/Open spaces	0.9
Driveways (trafficked areas)	1.2 (see detail)

LATERAL DRAIN BEDDING DETAIL



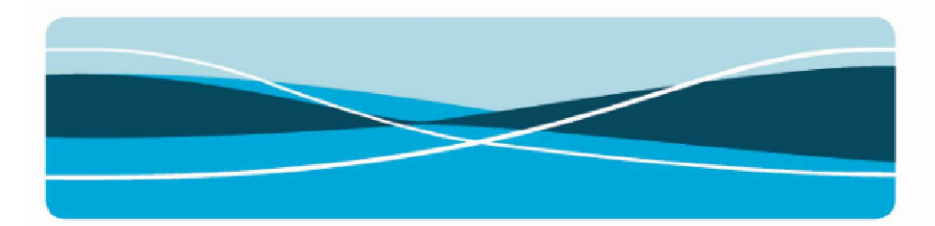
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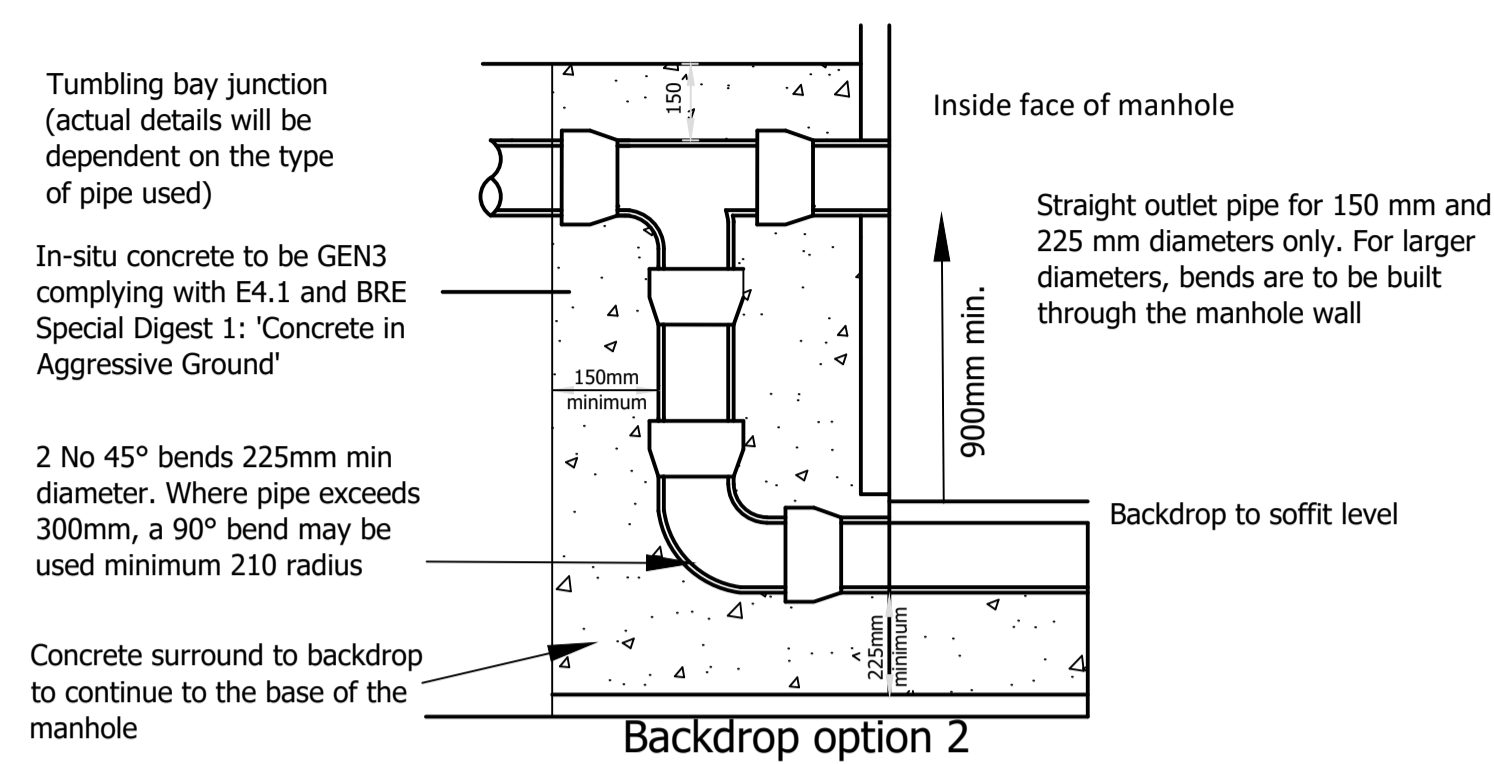
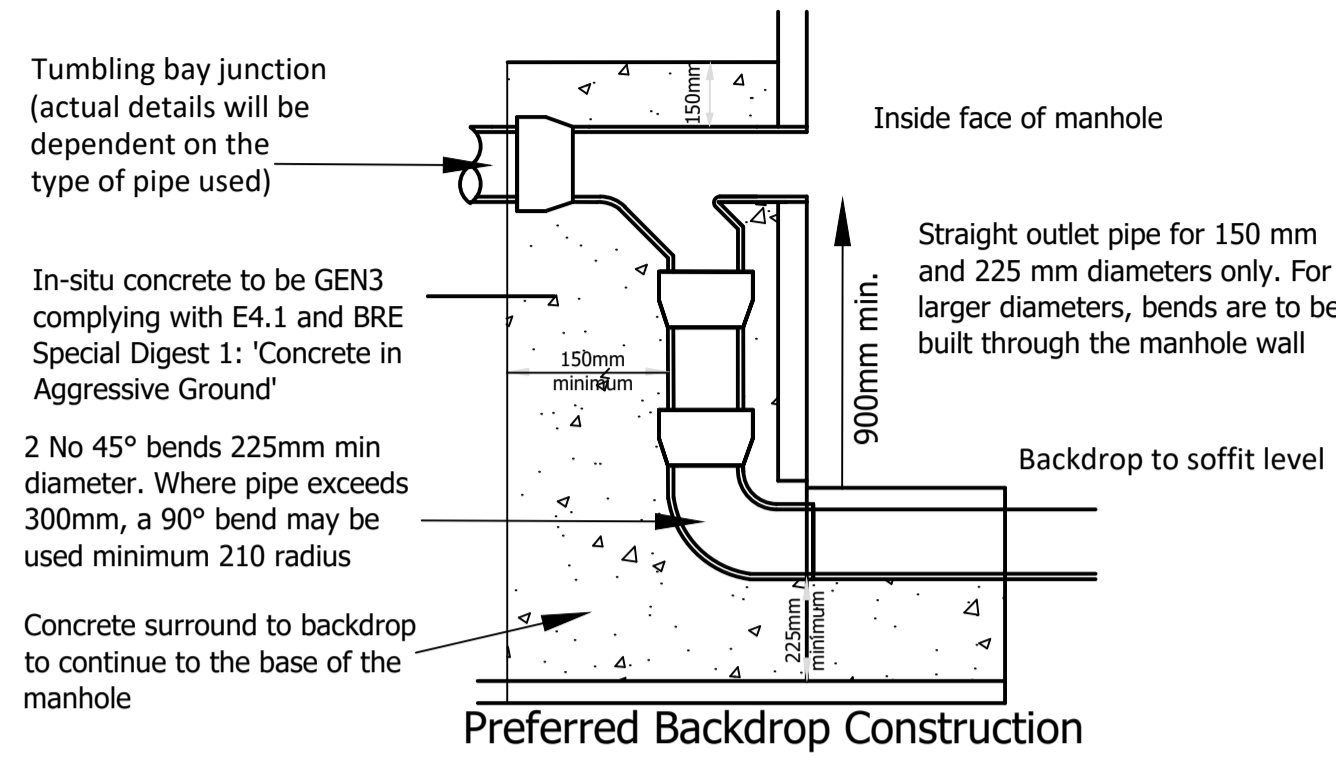
Developer Services

Title	Typical Demarcation Chambers
Drawing No	YW-DS-003
Revision	-
Date	01/04/2024

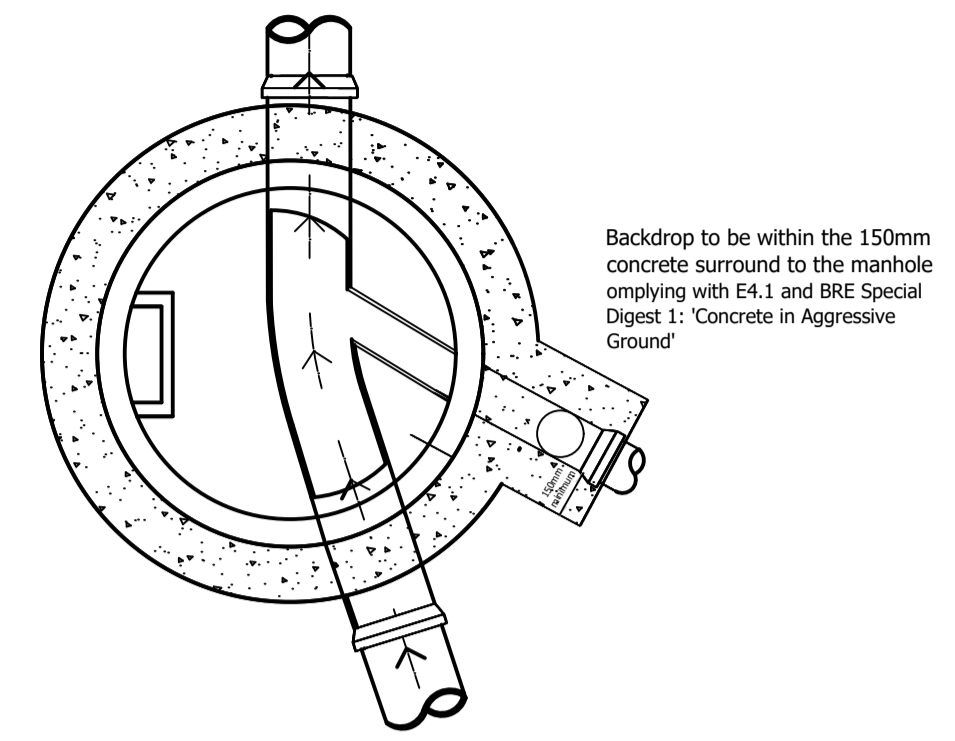


YorkshireWater

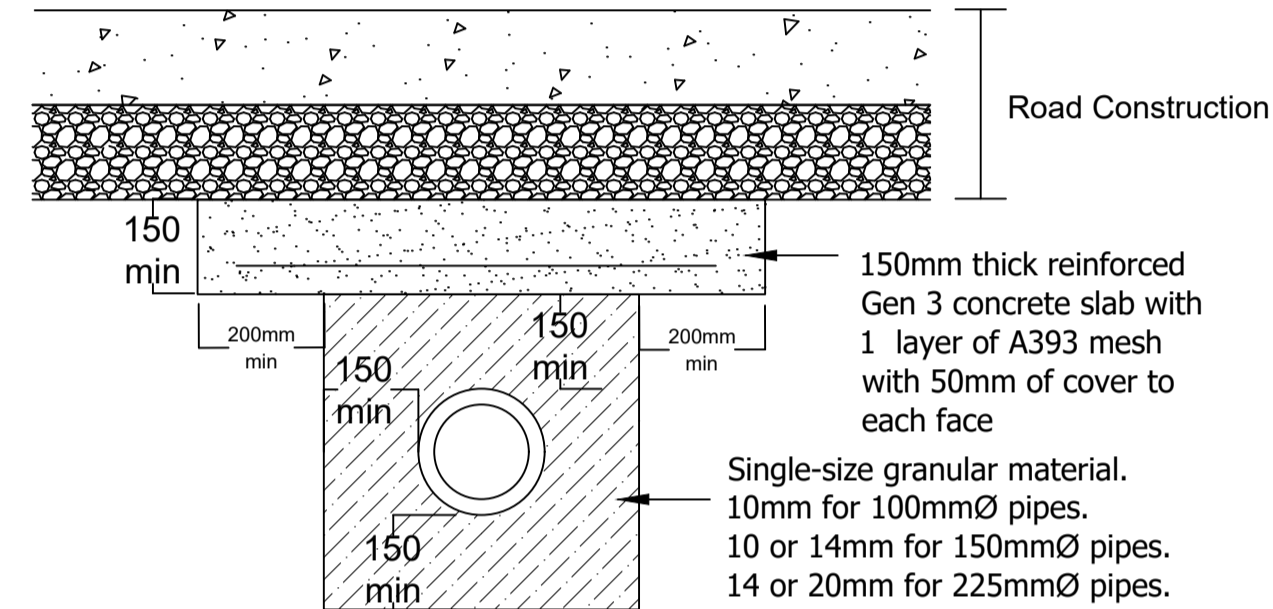
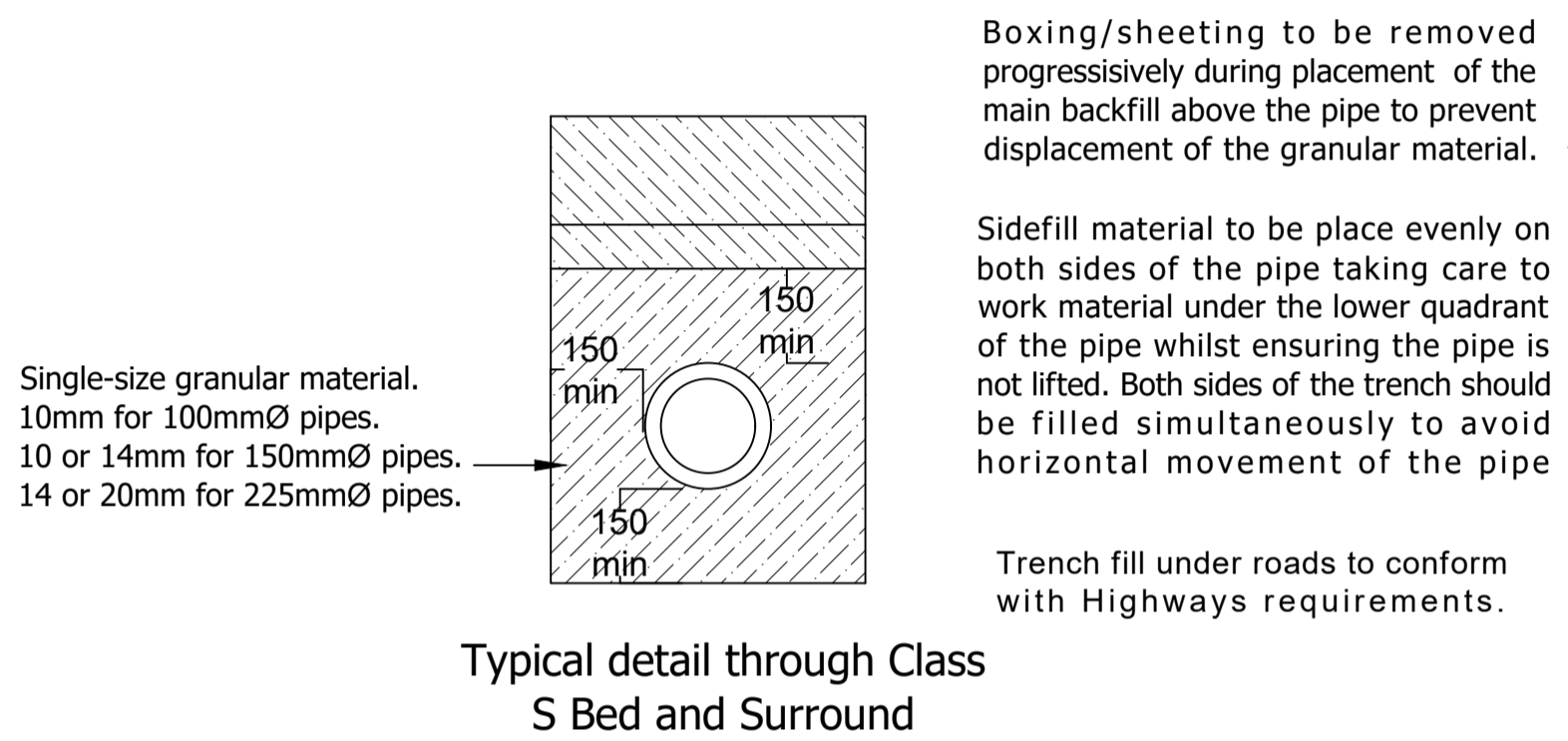
Backdrop details



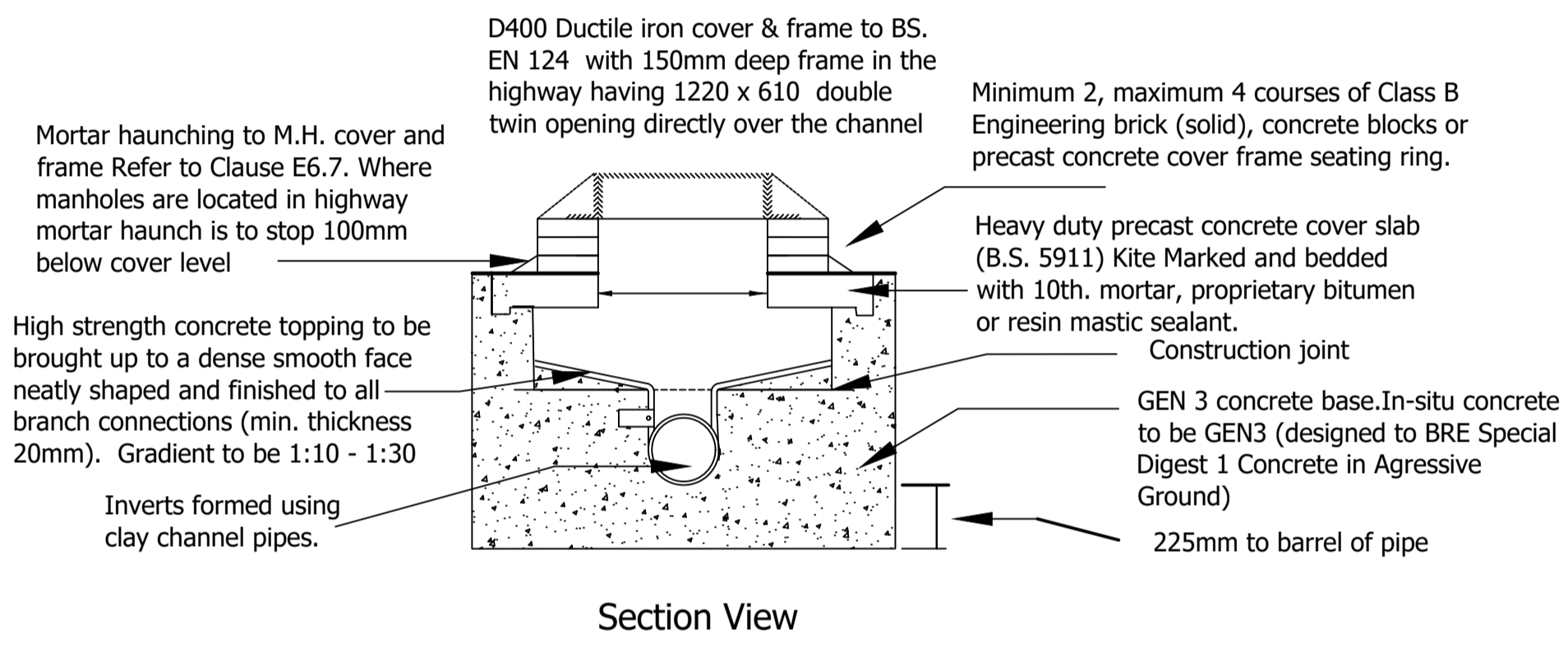
Backdrop plan view



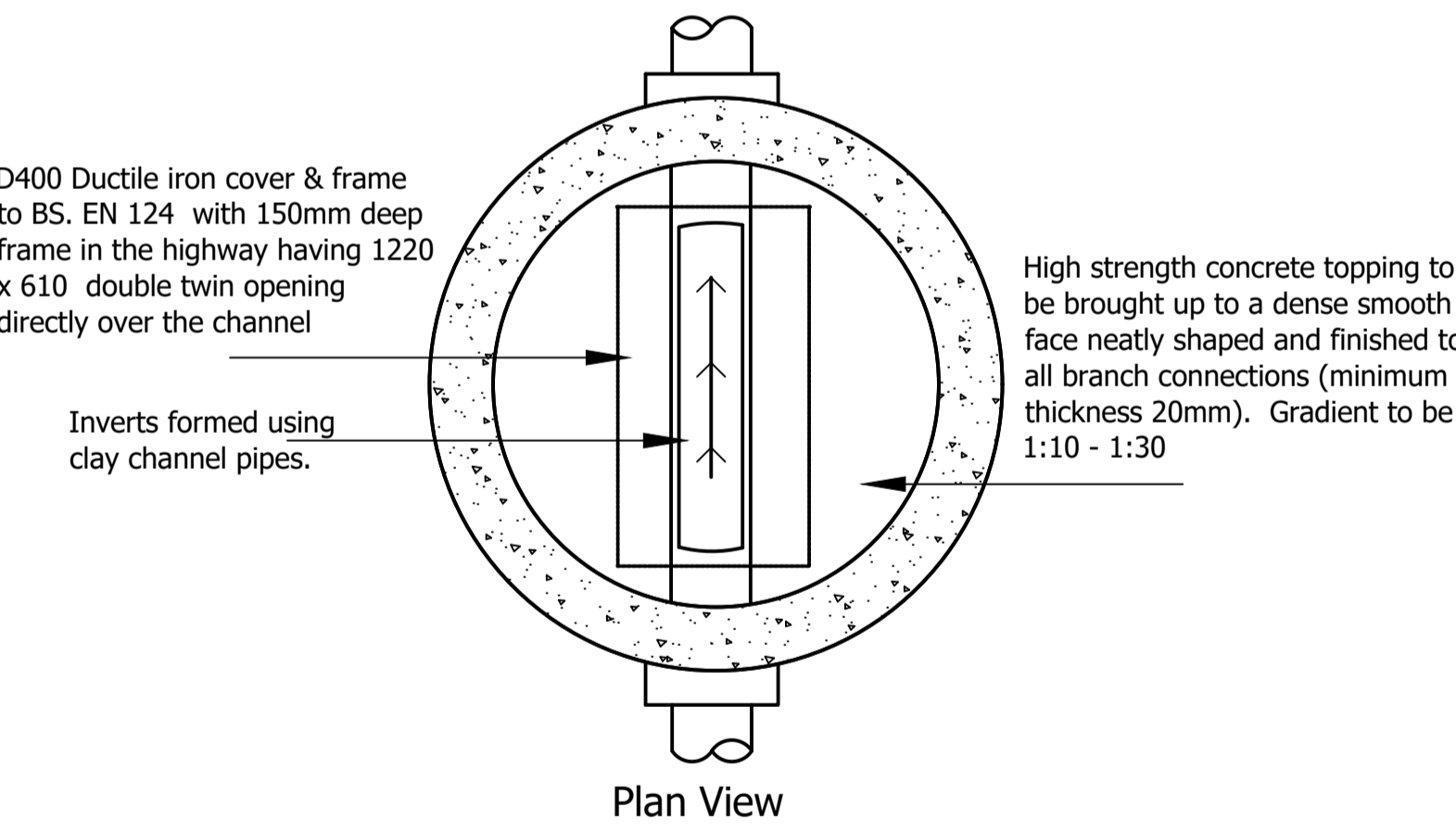
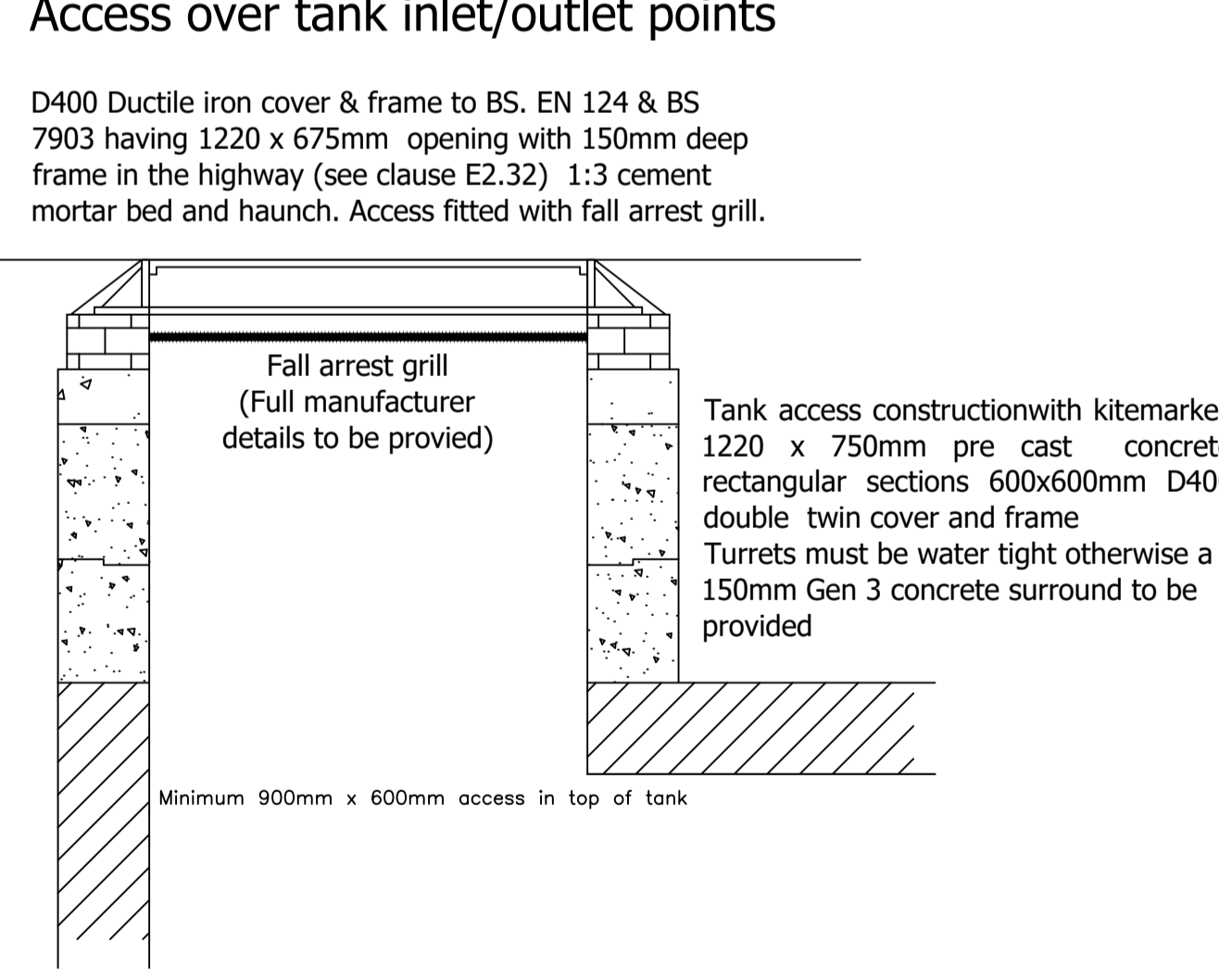
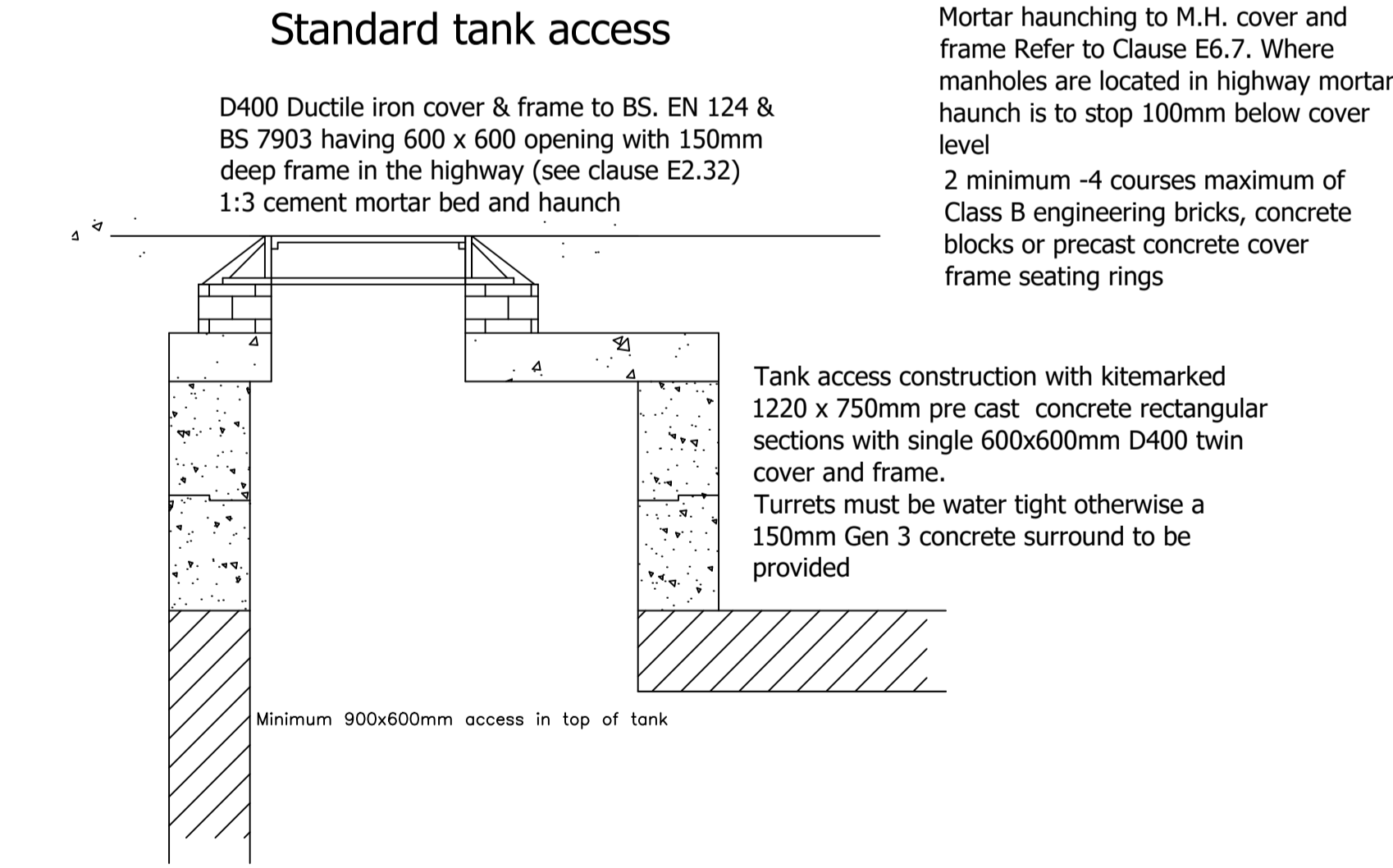
Pipe surround details



Shallow Manhole detail

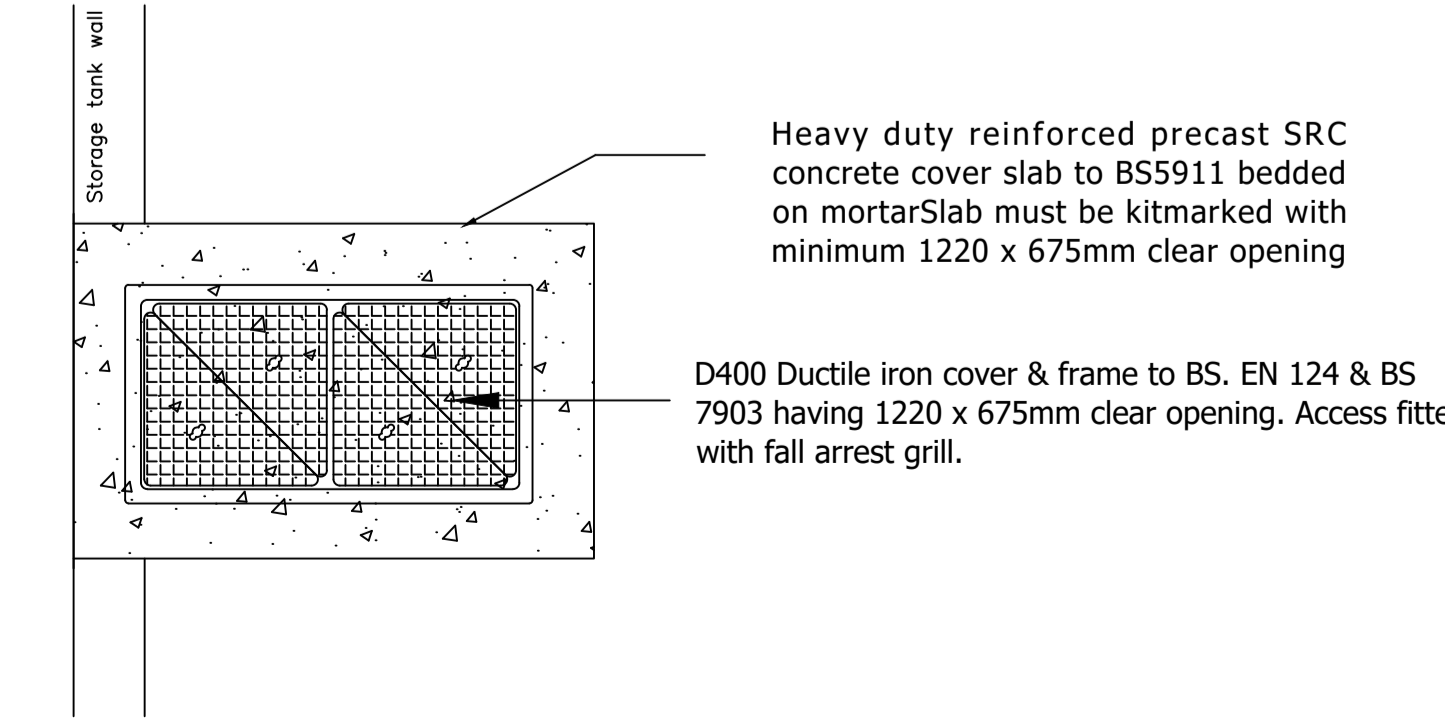
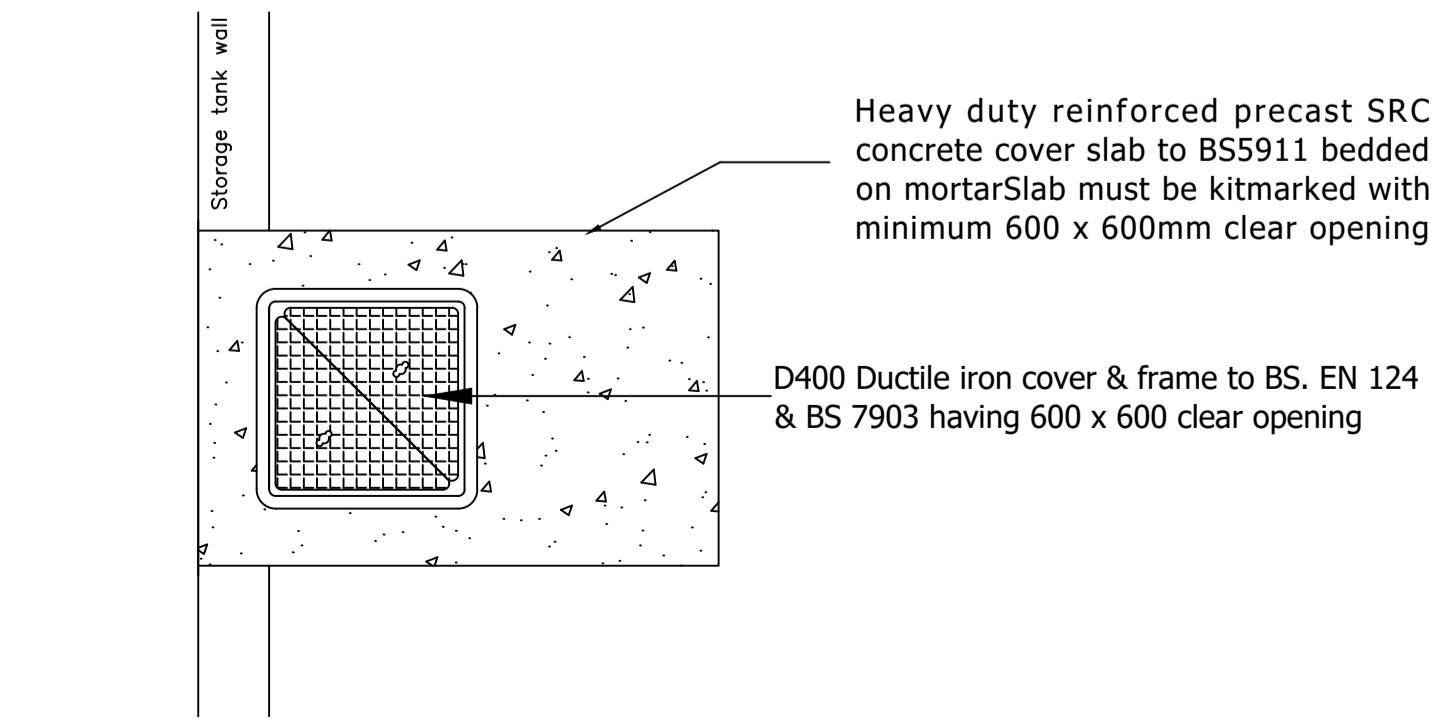
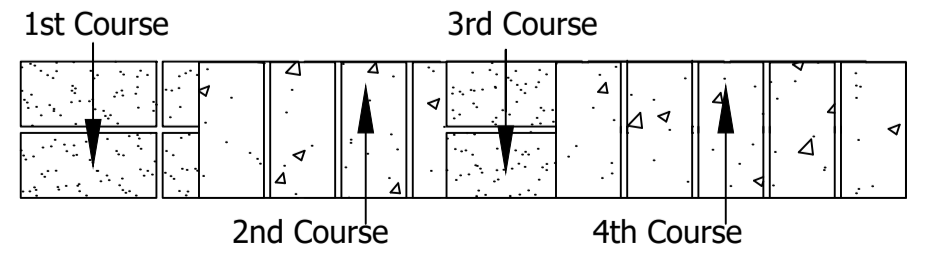
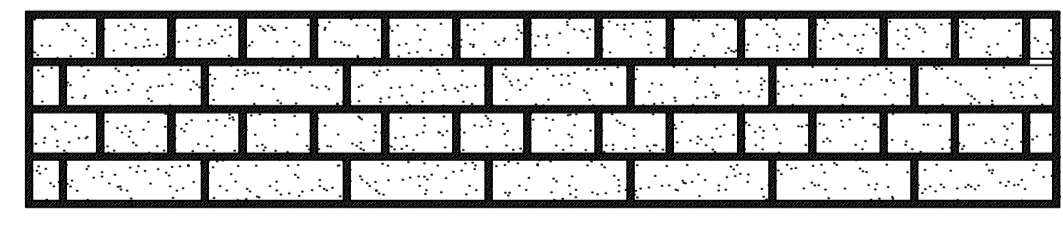


Tank access detail details



Brickwork detail

All brickwork to be minimum 2 - maximum 4 courses of Class B engineering bricks constructed in English Bond



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Developer Services

Title	Typical Construction Details
Drawing No	YW-DS-004
Revision	-
Date	01/04/2024



the first 1000 h of the experiment, the mean values of the variables were similar to those reported in the literature (Table 1). The mean values of the variables were similar to those reported in the literature (Table 1). The mean values of the variables were similar to those reported in the literature (Table 1).

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