

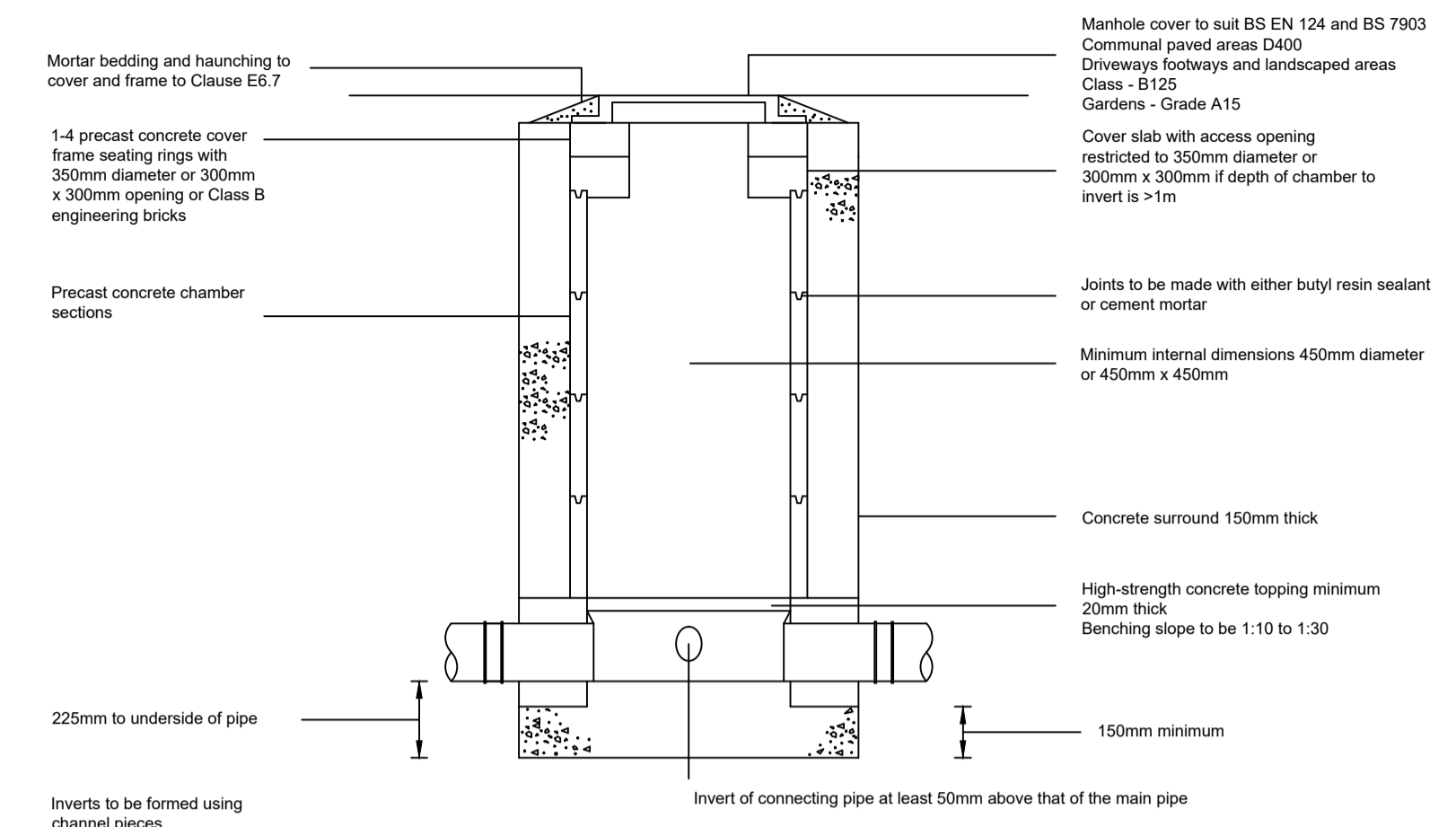
**Notes:**  
 Please report all discrepancies, errors and omissions.  
 Verify all dimensions on site before commencing any work on site or preparing shop drawings.  
 All materials, components and workmanship are to comply with the relevant British Standards, Codes of Practice, and appropriate manufacturers recommendations that from time to time shall apply.  
 For all specialist work, see relevant drawings.  
 This drawing and design are copyright of RMB Consultants (Civil Engineering) Ltd.  
 When this document is provided in electronic file format it is intended as a guide only and the recipient is to verify all dimensions and details with the Architects. If this is not acceptable, the files must be returned unused together with a written communication declining acceptance of this condition.

- Drainage Notes**
- 1.0 General
    - 1.1 All dimensions are in millimetres.
    - 1.2 Do not scale from drawings.
    - 1.3 The drainage layout and levels are based on a survey and layout provided by others.
    - 1.4 All workmanship and materials are to be in accordance with (i) The Design and Construction Guidance manual ("the Code") (ii) the Building Regulations.
    - 1.5 Clause numbers quoted are from the Design and Construction Guidance manual ("the Code").
    - 1.6 The Contractor must refer to the documents listed and must not rely solely on the following notes.
  - 2.0 Drainage General
    - 2.1 Before commencing construction the contractor must check the invert levels of any existing or proposed drains, sewers or outfalls to which connections are to be made.
    - 2.2 Cover levels are shown for guidance only. Final levels to be determined on site. Where affected by proposed works existing covers are to be adjusted as necessary.
    - 2.3 Drainage must be laid from the outfall upwards.
    - 2.4 Any existing drainage encountered during the course of the works is to be broken out unless it is found to be live in which case it must be diverted and/or re-connected to the site drainage system.
    - 2.5 Drains and sewers, once laid, must be protected from the effects of construction traffic.
  - 3.0 Private Drainage
    - 3.1 Private drainage shall be constructed in accordance with BS EN 152 and Approved Document H of The Building Regulations.
    - 3.2 PVC-U drainage is to be the OSMA Drainage System or similar approved.
    - 3.3 Inspection chambers will comply with BS EN 124:1994, BS EN 13598 and BS 7158:2001. Pipework is to comply with BS EN 1401, BS EN 13476-2 and BS4860:1989/2000.
    - 3.4 Vitrified clay drainage is to be Hepworth SuperSieve or similar approved.
    - 3.5 Pipework is to comply with BS EN 295-1.
    - 3.6 All drains are to be 100mm Ø unless shown.
    - 3.7 Access type selection to be as shown on the layout drawings and in accordance with Figure B3 of The Design and Construction Guidance manual ("the Code").
    - 3.8 Drains passing through footings are to be bridged by precast concrete lintels of adequate strength where necessary. Minimum clearance below lintel to be 50mm. Openings each side of the footing to be closed with rigid sheet material.
    - 3.9 Pipes beneath floor slabs are to be surrounded with granular material which is to be taken up to the oversite level unless shown otherwise. Underfloor pipes are not to be suspended from floor slabs or beams.
    - 3.10 Pipe runs adjacent to proposed foundations are to be installed in accordance with clause 2.25 of the Building Regulations part H.
      - a) Chambers 3000mm deep or less to invert may be 450mm dia. preformed chambers.
      - b) Access points which are no deeper than 600mm to invert may be 150mm dia.
    - 3.11 All gullies are to be trapped and roddable and fitted with fixed or hinged gratings.
    - 3.12 All channel drains are to be roddable. Channel drains draining the parking areas paved areas are to include a sump with silt removal bucket.
    - 3.13 The base of each rainwater pipe must be fitted with an access plate unless it is connected directly to an inspection chamber.
  - 4.0 Adoptable Drainage
    - 4.1 Any adoptable drainage or connections to the public sewerage network are to be vitrified clay pipes, Hepworth SuperSieve or similar approved. Pipes and fittings shall have flexible mechanical joints. Pipework is to comply with BS EN 295-1.

- 5.0 Potential Risks
 

**The attention of the Client and the Principal Contractor is drawn to the following potential risks in connection with the proposed works as designed for this project.**

  - 5.1 The works will entail deep excavation in ground which could be unstable and therefore appropriate support, barriers and safety measures must be provided.
  - 5.2 Works in the vicinity of live services including gas and electricity will be necessary and the advice of all statutory service companies must be sought before any works commence. The advice obtained must be followed.
  - 5.3 Confined Spaces:
    - a) In making connection to existing sewers and drainage installations, man entry to confined spaces will be required and all appropriate safety precautions must be followed including the use of gas detection apparatus and the provision of emergency escape sets, one set for each person entering the confined space.
    - b) The apparatus and equipment must be maintained in full working order at all times.
    - c) Only suitably trained persons should enter confined spaces.
    - d) The same precautions must be followed during future inspection and/or maintenance of any part of the completed drainage system.
    - e) The risks and hazards which might be present in a confined space and during entry thereto and egress therefrom include: (i) Oxygen deficient air from surrounding ground; (ii) Explosive gas; (iii) Toxic gas; (iv) Depth and/or velocity of fluid contents; (v) Inrush of fluids causing flooding; (vi) Health hazards from sewage; (vii) Physical injury from slipping or falling.
  - 5.4 Hazardous materials, including sealants, cement and bituminous materials, are specified and the manufacturer's advice on safe handling procedures must be obtained, followed and made clear to all operatives.

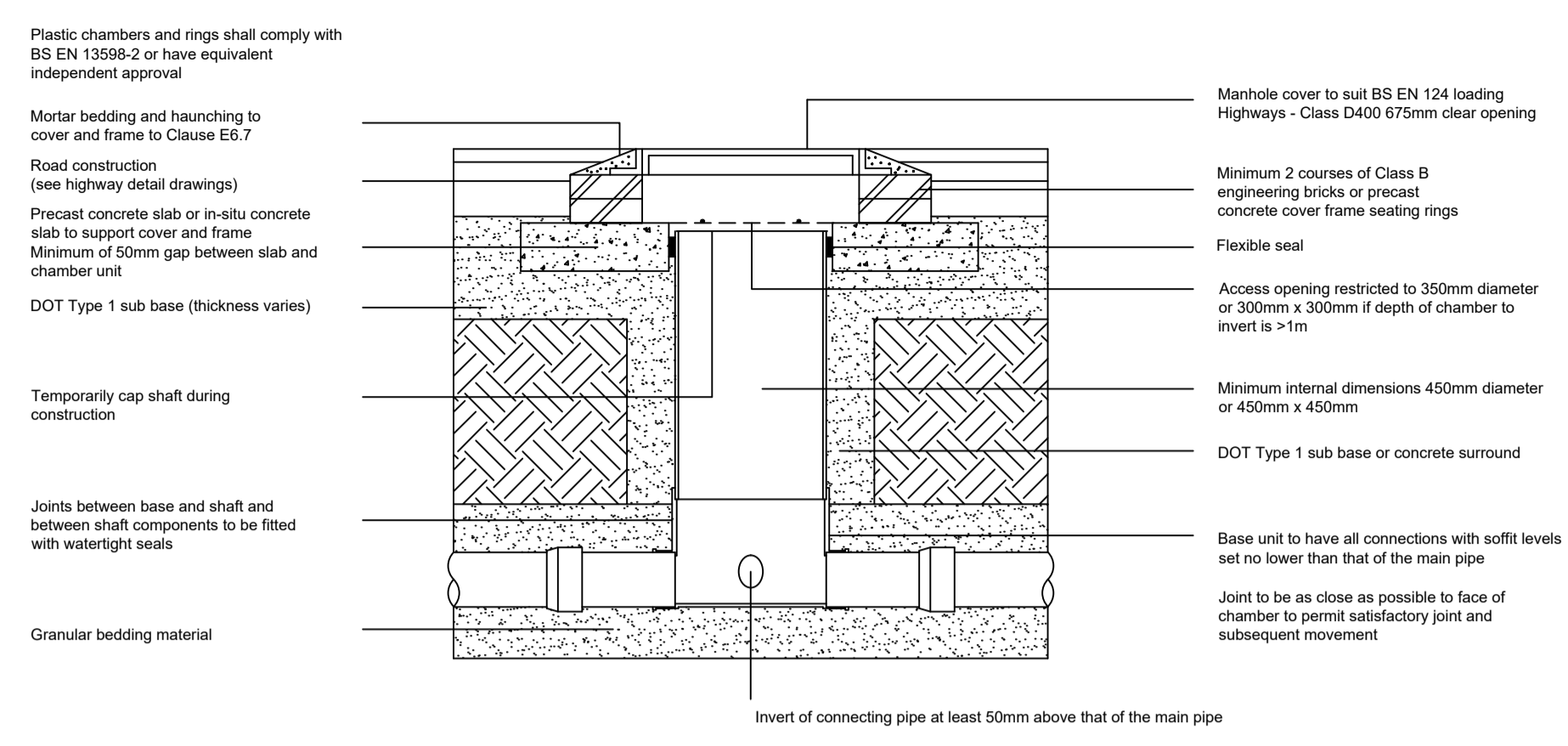


Rigid pipes built into manhole should have a flexible joint as close as possible to the external face of the structure and the length of the next rocker pipe should be as shown

Nominal diameter (mm)	Maximum effective length (m)
150 - 600	0.60
601 - 750	1.00
over 750	1.25

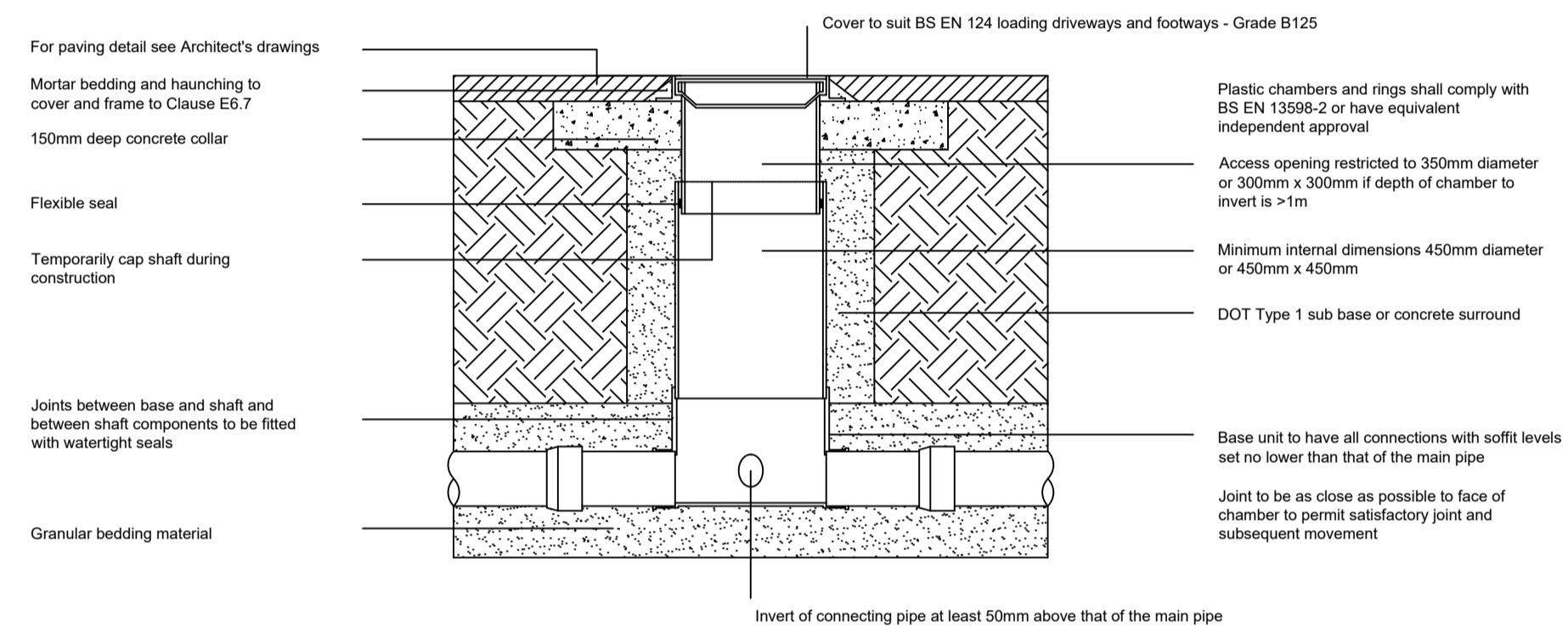
**Type D Access Chamber Detail (Rigid Material)**

To be constructed in accordance with the Design and Construction Guidance manual ("the Code").



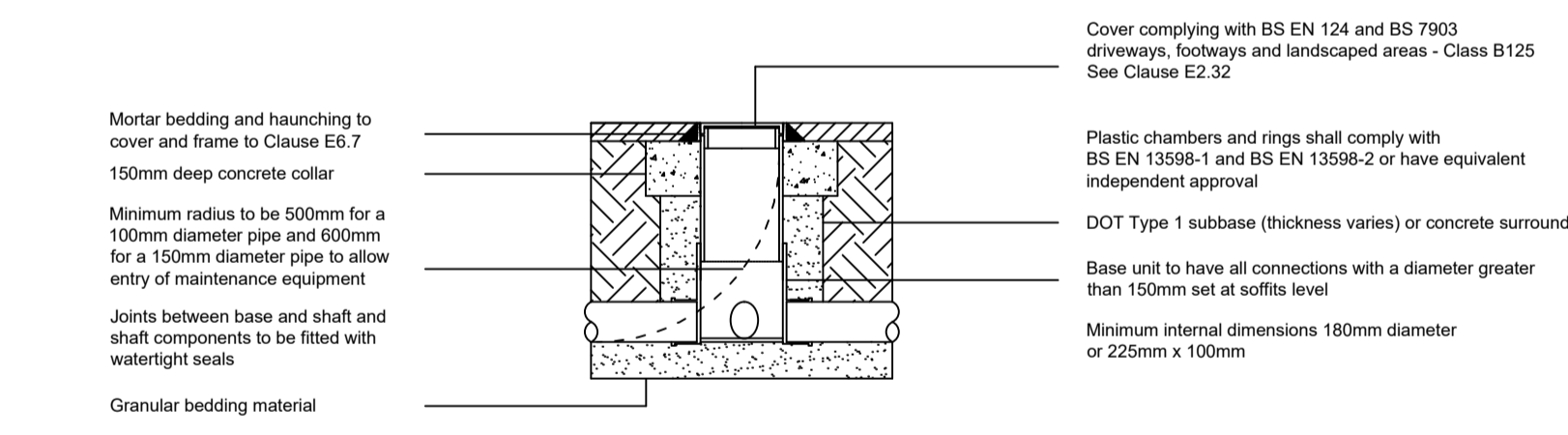
**Type D Access Chamber Detail Construction within road/areas with agricultural access**

To be constructed in accordance with the Design and Construction Guidance manual ("the Code").



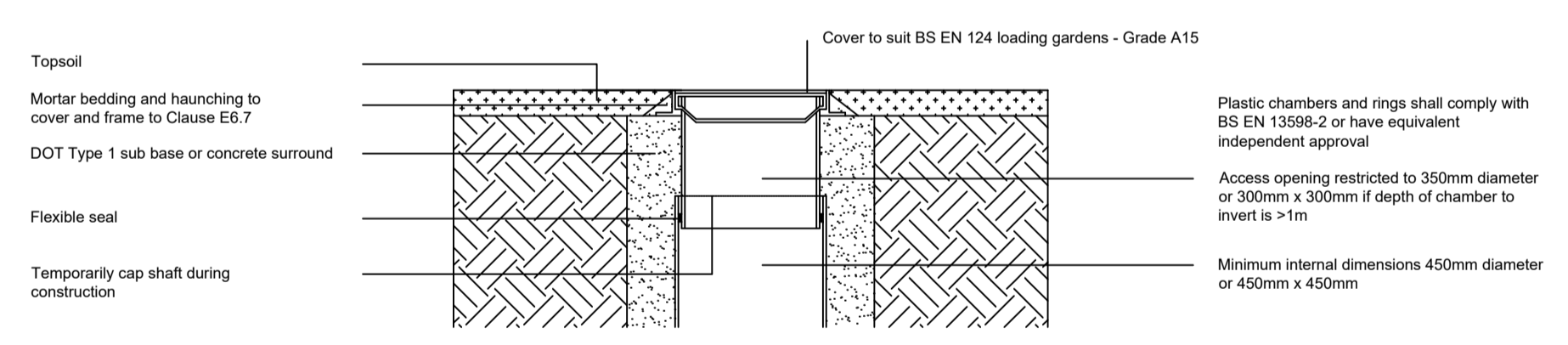
**Type D Access Chamber Detail Construction within driveways/footways**

To be constructed in accordance with the Design and Construction Guidance manual ("the Code").

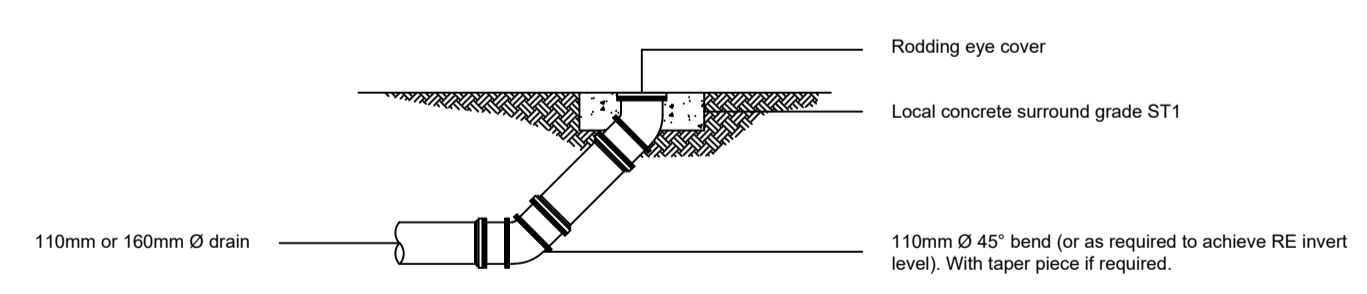


**Type E Access Chamber Detail**

To be constructed in accordance with the Design and Construction Guidance manual ("the Code").

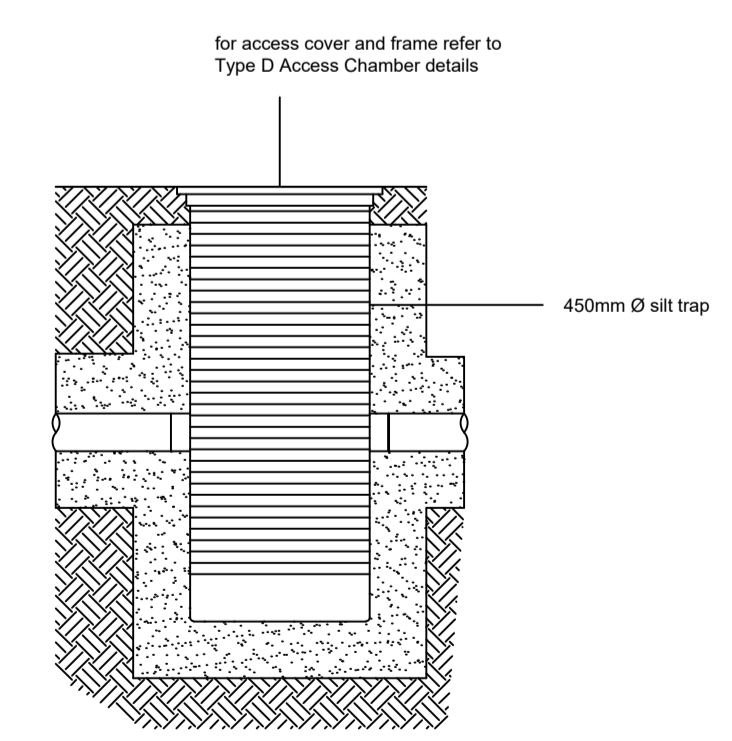


**Alternative Top Detail for Domestic Gardens/Landscaped Areas without Agricultural Access**



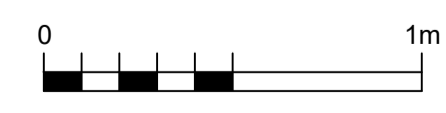
**Rodding eye**

**Alternative Top Detail for Domestic Gardens**



**Type D Silt Trap Detail**

Rev.



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