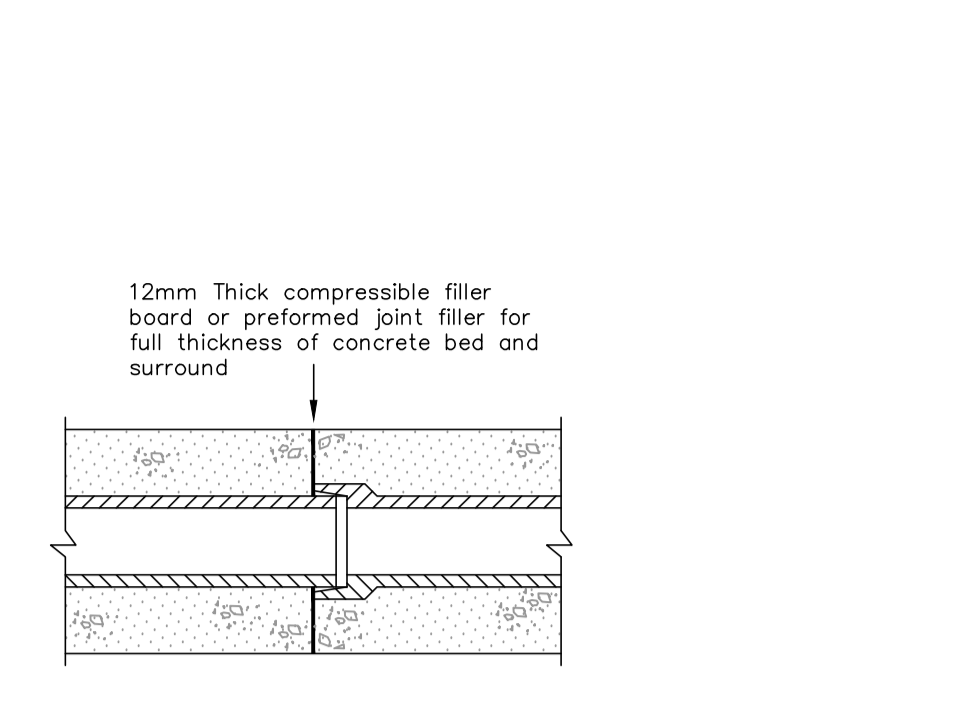
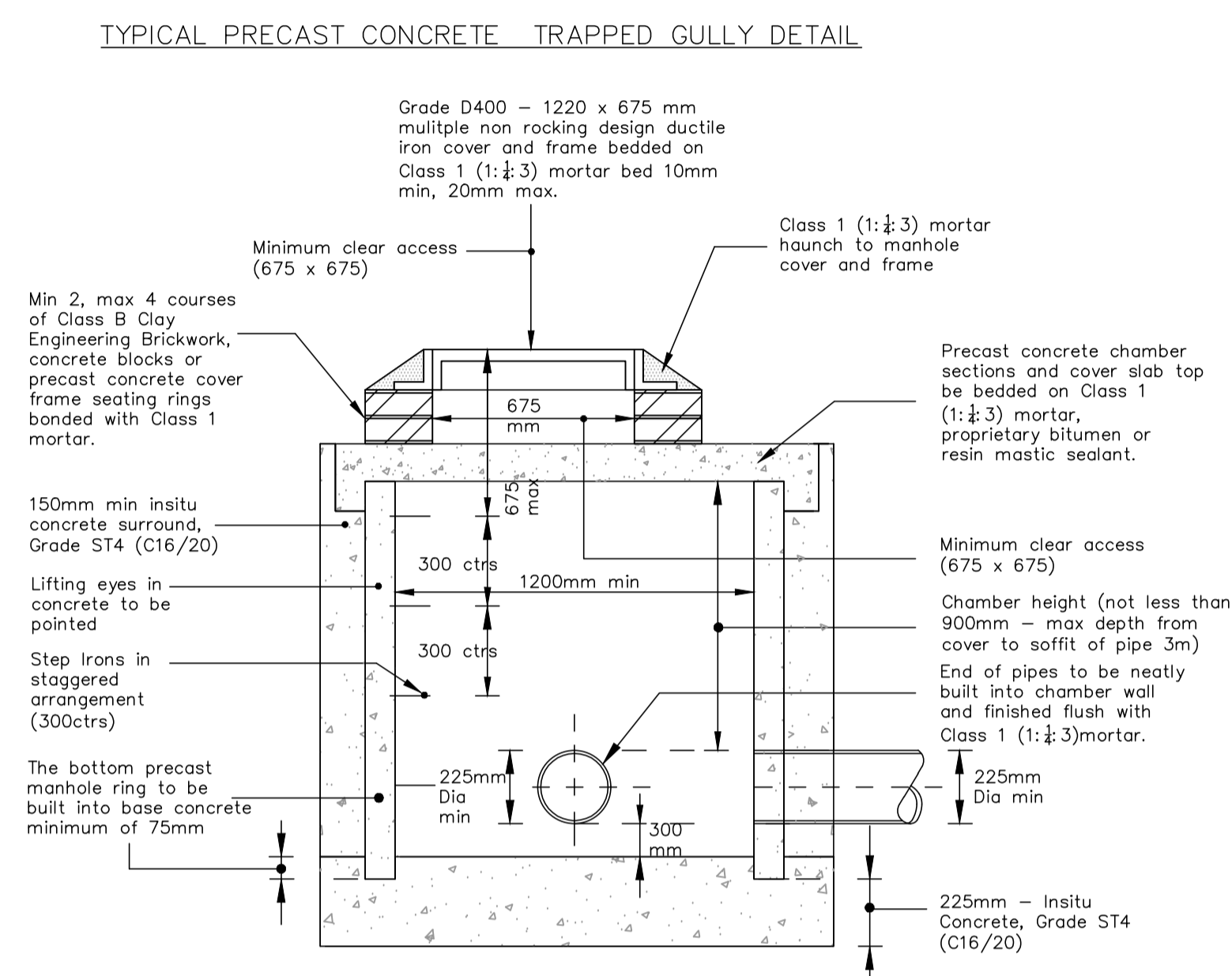
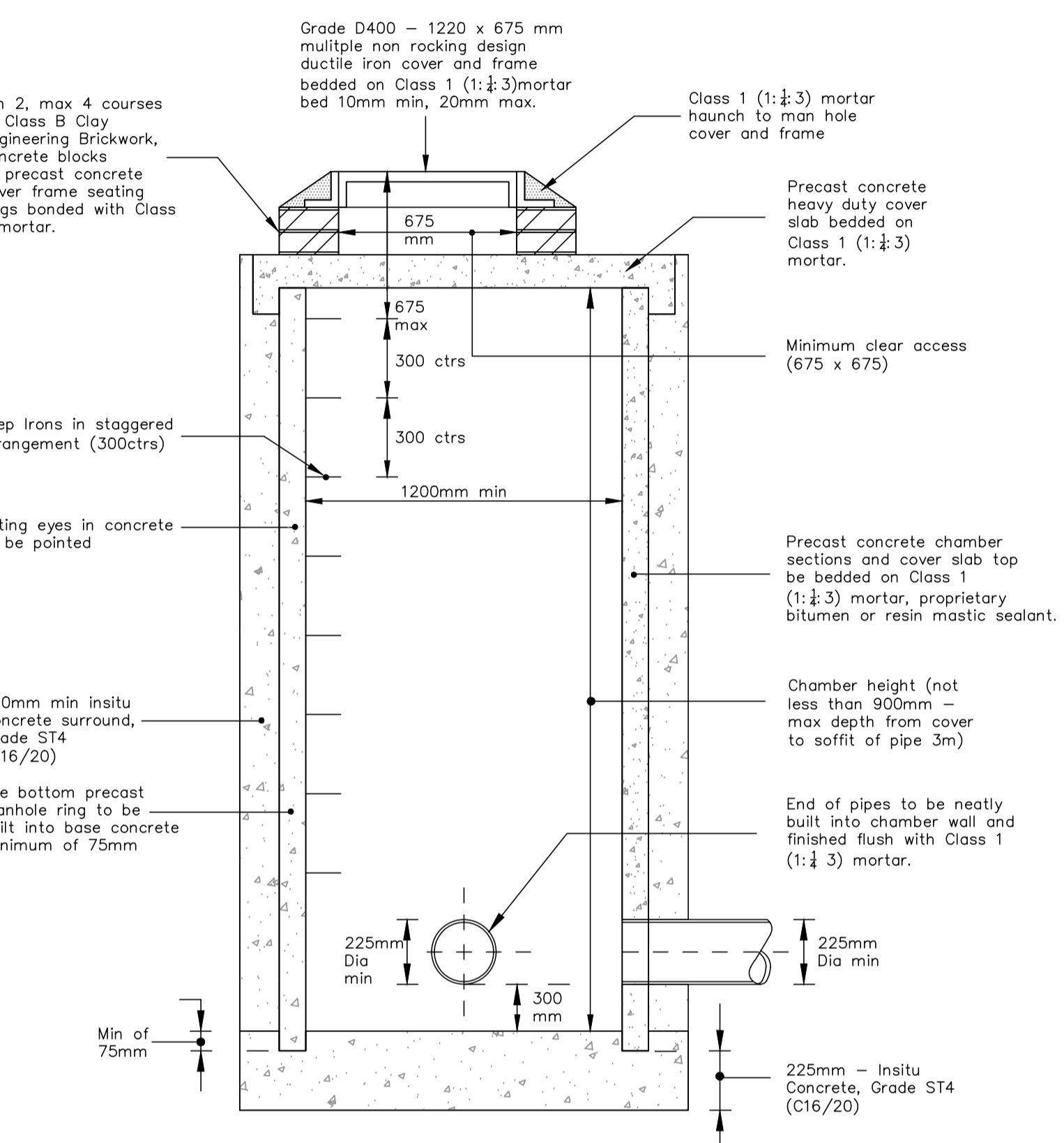


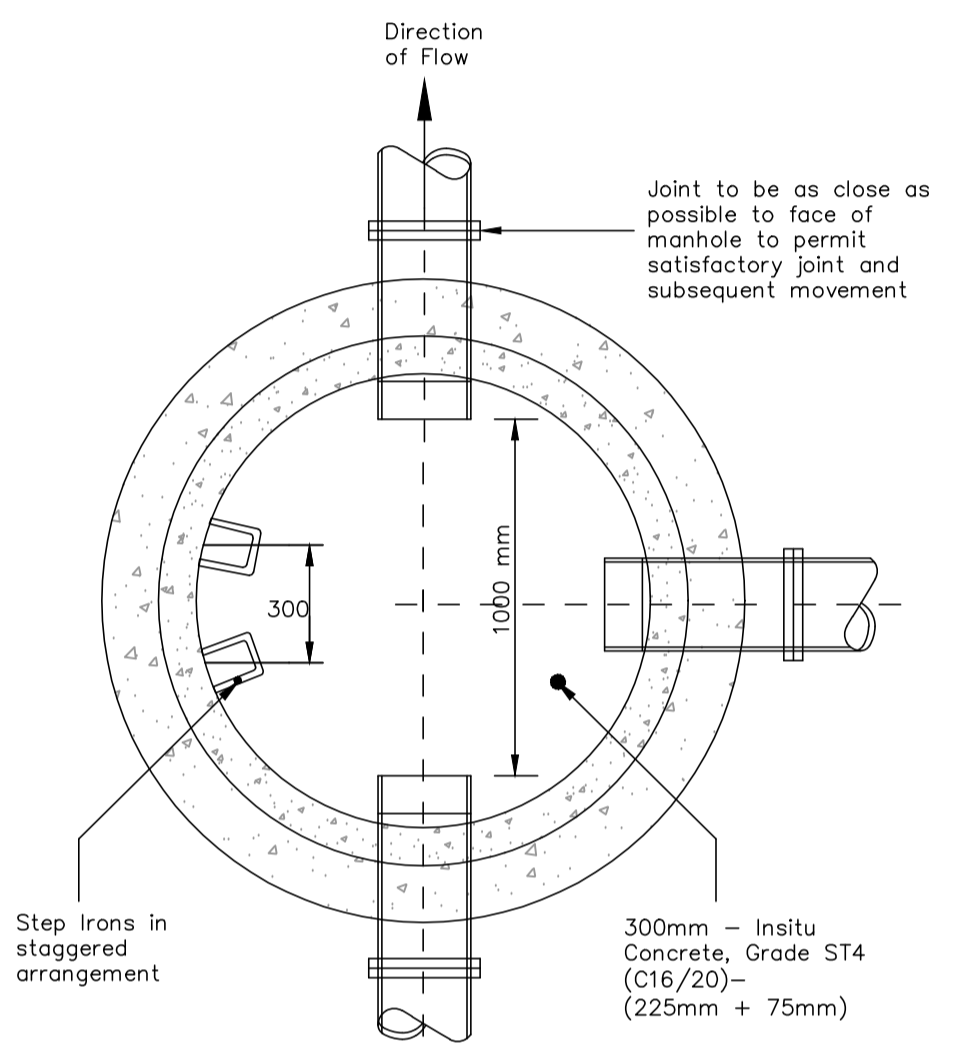
TYPICAL PRECAST CONCRETE TRAPPED GULLY DETAIL



CONCRETE SURROUND JOINT DETAIL



TYPICAL PRECAST CONCRETE CATCHPIT DETAIL ASSOCIATED WITH PURE HIGHWAY DRAINAGE SYSTEMS NOT BEING ADOPTED BY DWR CYMRU WELSH WATER (Depth to soffit of pipe Less Than 1.35m)



OUTLET PIPE DIA (mm)	CHAMBER DIA (mm)
DIA < 375	1200
375 - 450	1350
450 - 700	1500
700 - 900	1800
DIA > 900	2100

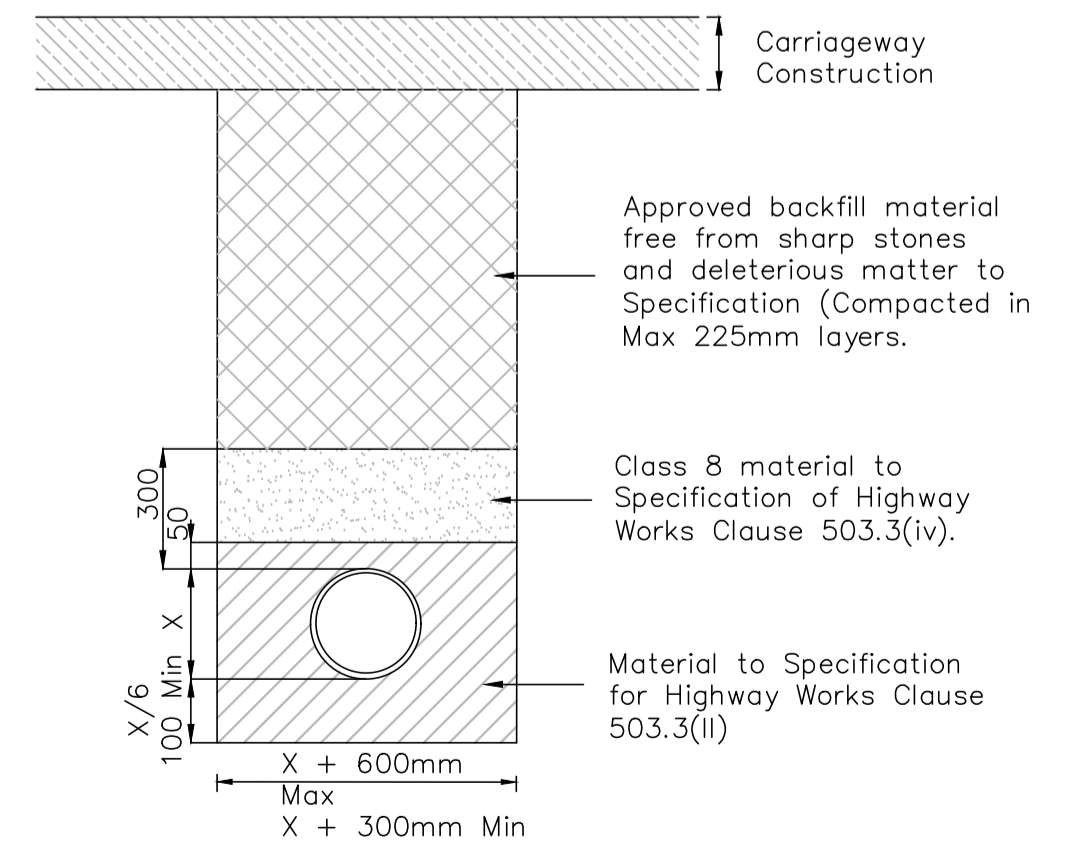
TYPICAL PRECAST CONCRETE CATCHPIT DETAIL ASSOCIATED WITH PURE HIGHWAY DRAINAGE SYSTEMS NOT BEING ADOPTED BY DWR CYMRU WELSH WATER (Depth to soffit of pipe Less Than 1.35 m to 3m)

BACKFILL MATERIAL TO BE LAID IN MAXIMUM 250mm LAYERS DEPTH AND COMPACTED

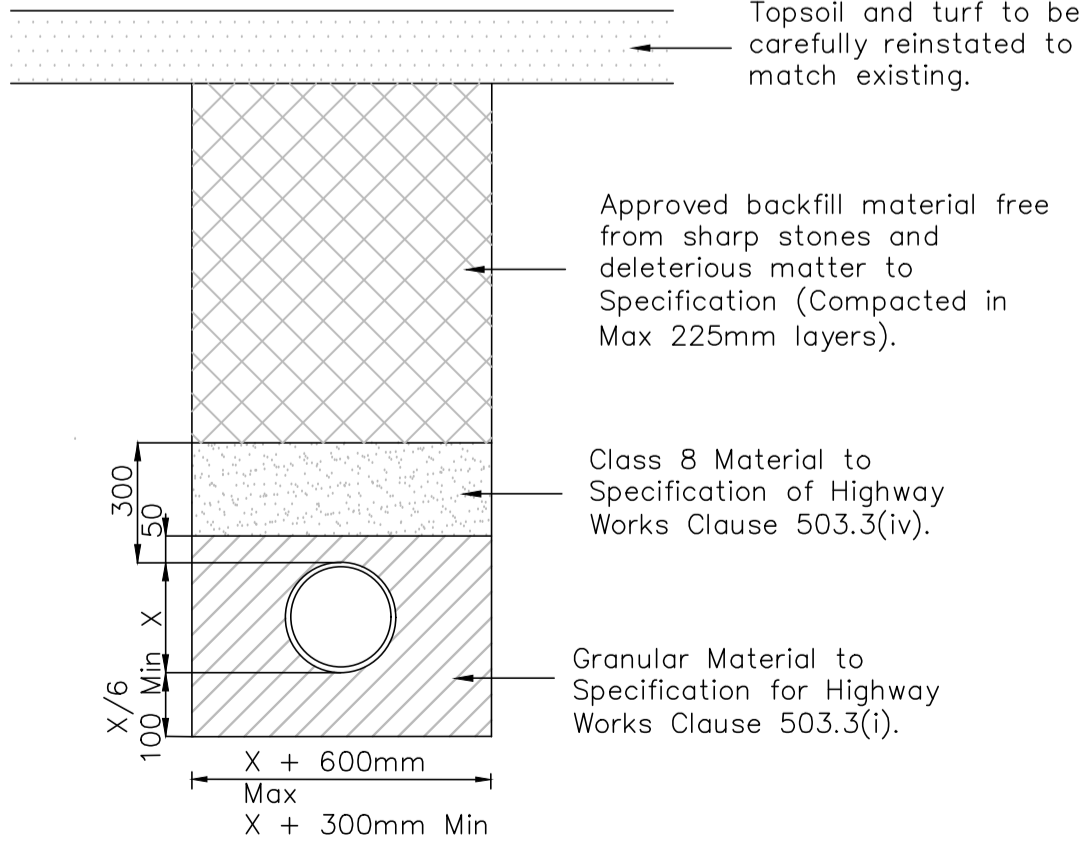
BACKFILL MATERIAL TO BE LAID IN MAXIMUM 250mm LAYERS DEPTH AND COMPACTED

SEWERS WITH LESS THAN 1200mm COVER IN ROADS AND CAR PARKS OR 900mm ELSEWHERE TO BE PROVIDED WITH 150mm CONCRETE SURROUND. REFER TO MAIN DRAINAGE LAYOUT WITH NOTES FOR ASSOCIATED INFORMATION

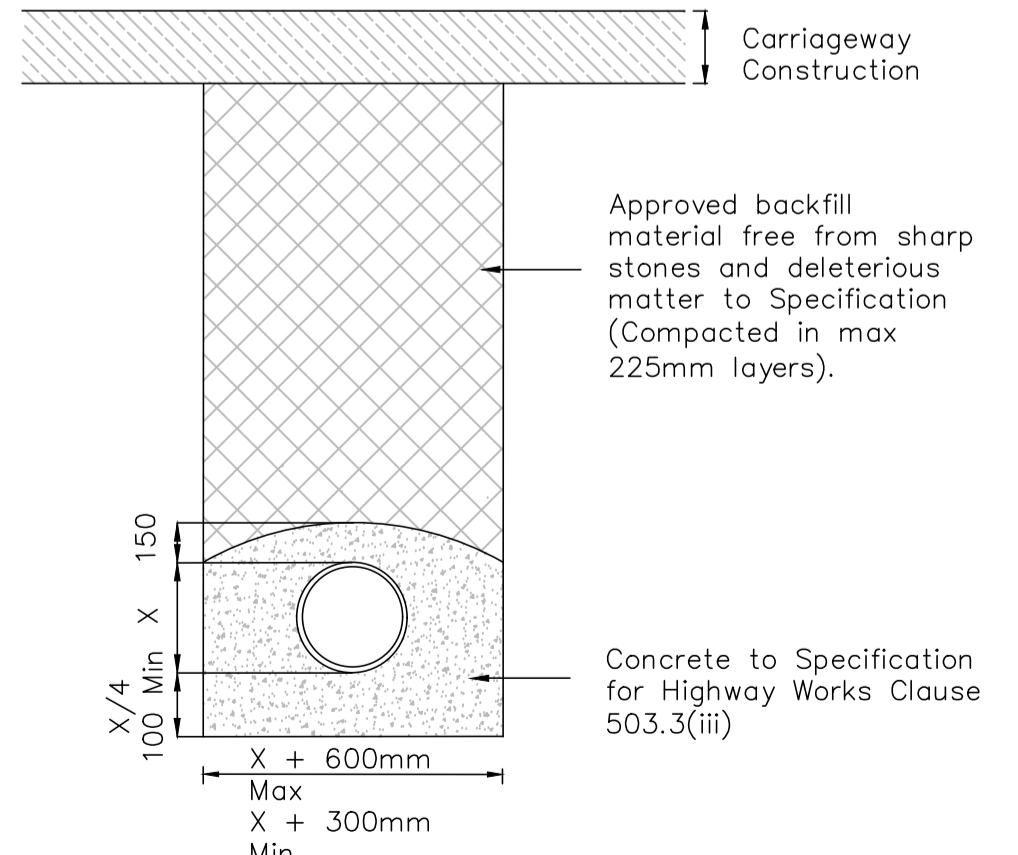
SEWERS WITH LESS THAN 1200mm COVER IN ROADS AND CAR PARKS OR 900mm ELSEWHERE TO BE PROVIDED WITH 150mm CONCRETE SURROUND. REFER TO MAIN DRAINAGE LAYOUT WITH NOTES FOR ASSOCIATED INFORMATION



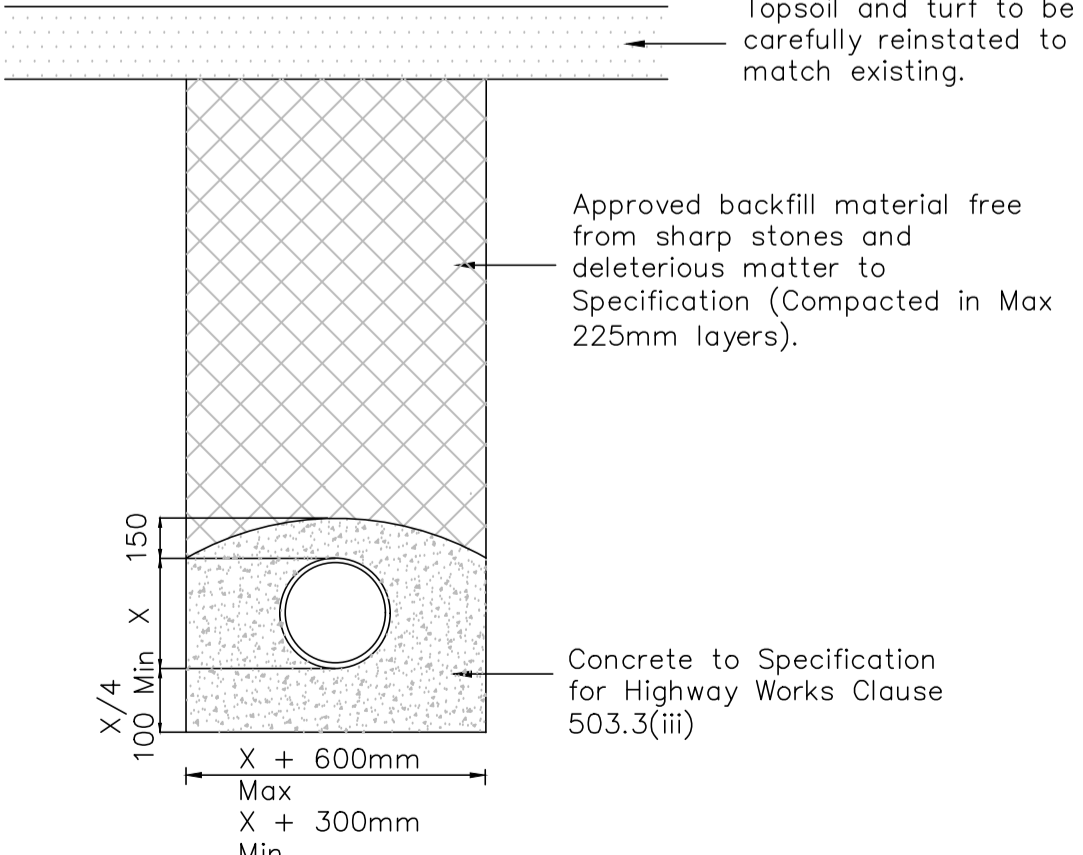
DETAILS OF PIPE CONSTRUCTION UNDER ROADS AND FOOTPATHS (COVER > 1.2m TO CROWN)



DETAILS OF PIPE CONSTRUCTION ELSEWHERE (COVER > 1.2 TO CROWN)

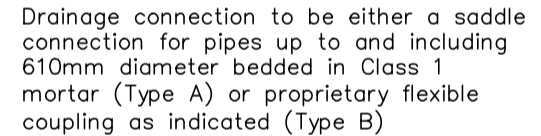


DETAILS OF PIPE CONSTRUCTION UNDER ROADS AND FOOTPATHS (COVER < 1.2 TO CROWN)

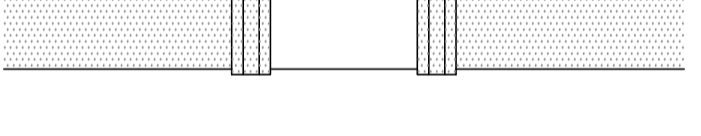


DETAILS OF PIPE CONSTRUCTION ELSEWHERE (COVER < 1.2 TO CROWN)

Drainage Connection Type "A"



Drainage Connection Type "B"



Road Gullies (Cont)

- All dimensions shall be in millimetres unless otherwise stated.
- All works associated with the installation of pure Highway drainage systems and service ducts (no roof or yard) to be maintained by the Local Highway Authority and not Dwr Cymru Welsh Water shall comply with the current revisions of Series 50 of the Manual of Contract/Specification for Highway Works, amended November 2009 and shall carry the BSI Kitemark.
- Gully pots shall be trapped shall have a minimum internal diameter of 450mm, depth of 750mm and a gully outlet of 150mm.
- Gullies shall be constructed so that no part of the Trap or spout has cross sectional area less than 2/3rd that of the outlet. The depth of water seal in trapped gullies shall not be less than 50mm.
- Depth "A" to be 750mm minimum below carriageway to allow for services to clear gully connections and reduce the risk of damage to pipes due to settlement. Where depth of run is 1.2m below carriageway level a flexi joint is to be used at every joint.
- All brickwork shall be solid Class 'B' clay engineering brick complying with BS EN 771-1:2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- All mortar required for bonding brickwork, haunching and bedding the manhole cover and frame shall be Class (i) with a cement/lime/sand ratio of 1:1:3 complying with BS EN 998-1:2003, BS EN 998-2:2003 and Series 2400 of the Specifications for Highway Works, amended November 2009.
- Chamber base shall be constructed with Insitu concrete with a minimum grade of ST4/C16/20 concrete in accordance with the relevant section of BS EN 206-1, BS 8500-1:2006, BS 8500-2:2006 and item 2602 of Series 2600 of the Specifications for Highway Works, amended November 2009.
- All precast concrete gully pots shall be set on and surrounded with a minimum of 150mm bedded on an insitu concrete with a minimum grade of ST4/C16/20 concrete in accordance with the relevant sections of BS EN 206-1, BS 8500-1:2006, BS 8500-2:2006 and item 2602 of Series 2600 of the Specifications for Highway Works, amended November 2009.
- Chamber Steps shall be Type D, Class 1 complying with the relevant sections of BS EN 131:2002 and item 507.6 of Series 500 of the Specifications for Highway Works, amended November 2009.
- Internal dimensions of chamber normally 1220 x 675mm (as clear opening in frame) but chamber width must be increased for pipes larger than 225mm diameter to maintain 225mm benching each side with the brickwork corbelled down to 675mm.
- Pipes entering manholes shall have a flexible joint within 500mm of the inside face of the manhole joining with a short rocker pipe.
- Maximum depth from cover level to soffit 1.35m.
- Maximum depth from cover level to soffit 3.00m.

Trench and Bedding Details

- The bedding and surround of all pipes within the area of carriageway, footway or cycleway with a cover of less than 1.2m shall be Type Z (Encased in concrete, grade ST4 C16/20) unless otherwise agreed in writing by the Highway Authority's representative.
- The minimum/maximum width of the trench applies on and below a line 300mm above the top of the pipe. Above the 300mm line the trench shall be in accordance with Clause 505 of the Specification for Highway works.
- The concrete bed or surround may extend to the side of the trench or be a minimum width. Class B material to be used to fill any voids so formed.
- For Type Z trench the concrete cover may be formed to a radius batter or horizontal surface. Minimum cover of concrete 150mm.

Pipeworks (Pure Highway Drainage Systems only)

- All pipe materials and associated with pure Highway Drainage systems shall be double ribbed twin wall UPVC pipes and couplings which shall comply with DTLR Specifications for Highway Works and carry a BBA & HAPAS Roads and Bridge Agreement Certificate.
- The minimum diameter of a highway carrier drain shall be 225mm diameter unless otherwise agreed in writing with the Highway Authority's representative.
- All gully connections shall not be less than 150mm in diameter.

Miscellaneous

- All new surface/highway drainage systems and adjoining existing systems shall at the developers/contractors expense be cleaned and kept clear of obstructions during the course of the works. On completion of the whole of the works, all chambers, catchpits, gullies and drains shall be flushed from end to end with water and left free from obstructions.
- All new surface/highway drainage systems installed by the developer/contractor shall be tested using the water test method identified within Clause 509 of the specifications for Highway Works PRIOR to final wearing course being laid in order that any defects can be rectified.
- All existing and newly installed highway/surface water drainage systems (Gullies, manhole/catchpits & carrier drains) shall be mechanically cleaned following resurfacing works.

NOTES :-

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PROJECT: Dinas Powys Cross Common Road

DRAWING TITLE: Highway Construction Details Sheet 4 of 5

DRAWN	CHECK	STATUS	SCALE
TL	SD	Tender	N.T.S@ A1
DATE	JOB NO.	DWG NO.	REV.
Jun 2017	1700	105-04	A