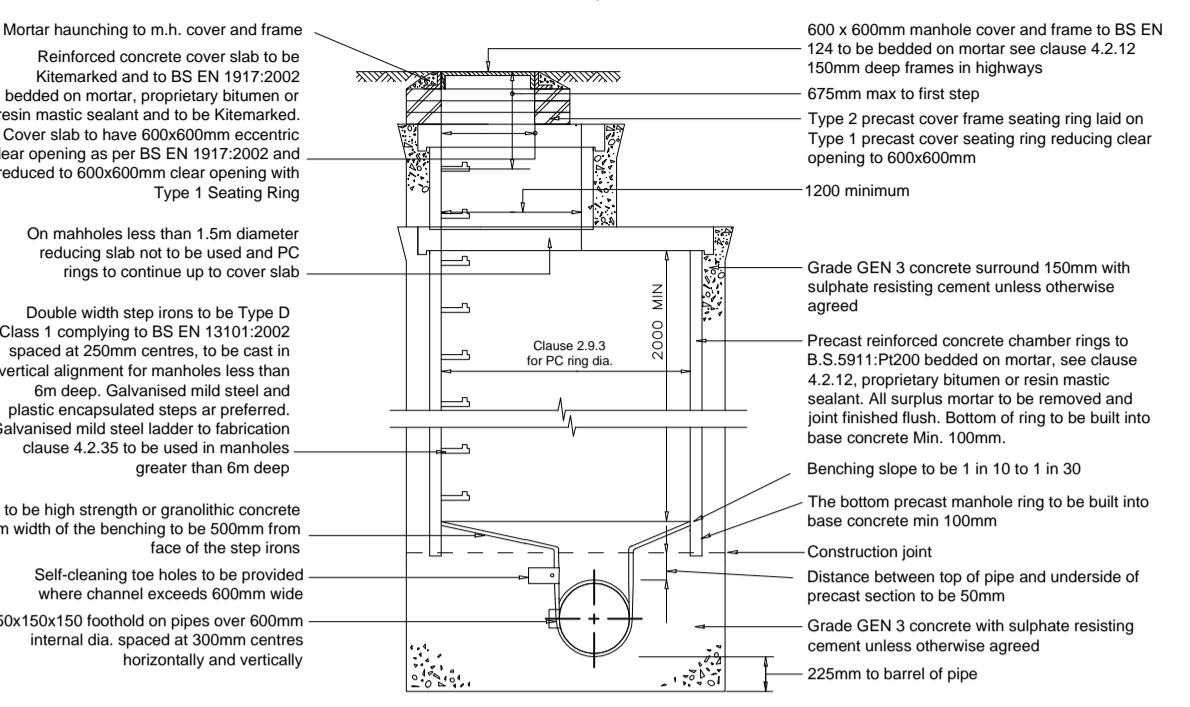


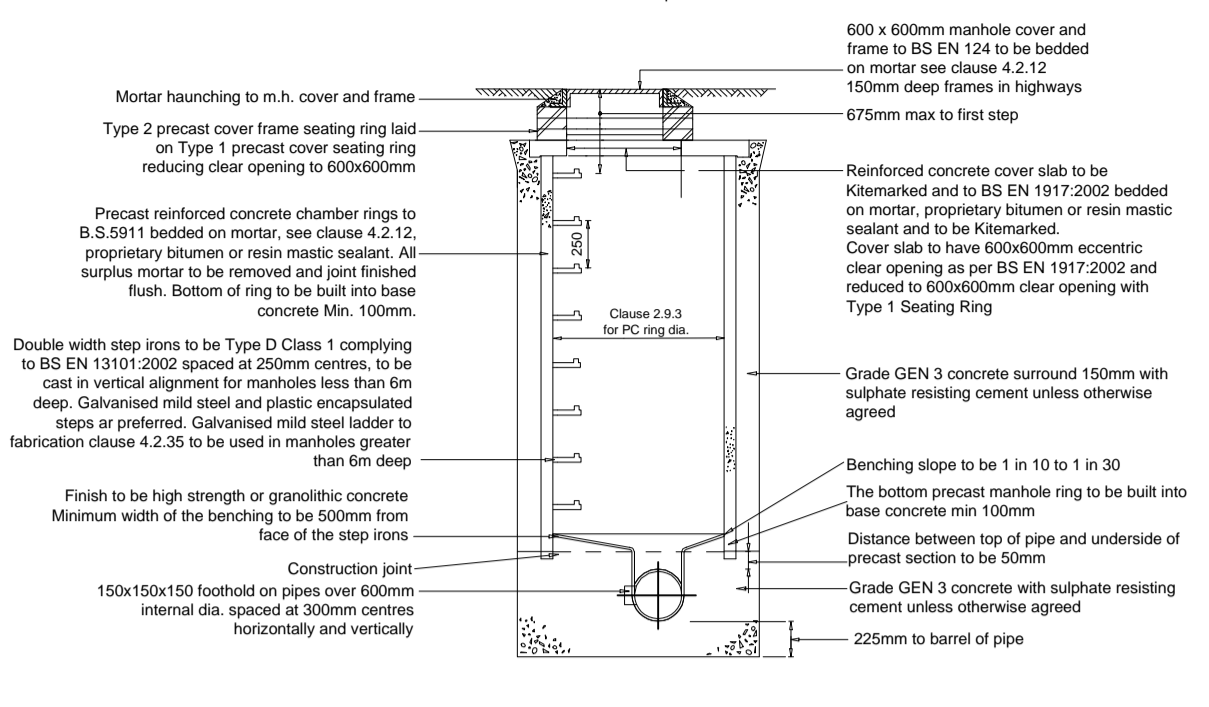
NOTES:

- All statutory undertakers equipment in footway and carriageway to be located and diverted before works commences.
- A pedestrian route through the works shall be maintained at all times and clearly defined by suitable barriers and lights where necessary.
- The contractor is obliged to obtain necessary road opening and/or sewer connection licenses prior to commencement of works.
- One vertical joint per course of brick work shall be left open to allow drainage during construction.
- All statutory undertakers covers and frames to be adjusted to suit new carriageway levels prior to surfacing.
- All existing gullies and drain runs to be cleaned of debris and high pressure water jetted prior to commencement of works.
- The existing sewers and culverts shown on this drawing are taken from various archives, drainage plans and sewer records. Some of this information is contradictory and the locations shown are interpreted using existing features and manhole locations shown on the survey. The exact depth and location should be verified on-site prior to commencing construction.
- All adoptable sewer works and material to be in accordance with 'Sewers for Adoption' 6th Edition, Anglian Water requirements and Kitemarked.
- All drainage works that shall be adopted by Anglian Water to be subject to their approval prior to commencement on site.
- All hard standing and impermeable areas outside the adopted highway boundary to be drained and collected in private drainage systems and discharged into the surface water sewer before water encroaches onto the public highway.
- Gullies should not be located in the area of dropped crossings.
- The chamber size of manholes with more than one connection in them may need to be increased and increment to accommodate the connections and bends.
- 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 non vehicular access areas) then a concrete slab should be provided above granular bed and surround. Refer to Table 2.4 in Sewers for Adoption, 6th Edition for protection measures.
- Granular bedding for pipes shall consist of aggregates from natural sources complying with the relevant provisions of BS 882 sized in accordance with the table above.
- All pipes with a diameter larger or equal to 450mm shall be concrete. Pipes with a diameter less than 450mm shall be clay.
- Verified fall pipes and fittings for sewers shall have flexible mechanical joints. Pipes for foul sewers and surface water sewers shall comply with relevant requirements of BS EN295 and BS 65 (surface water pipes only).
- Manhole covers shall 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 Anglian Water before any sewer works are carried out.
- Anglian Water is not obliged to accept filter drain/land drainage runoff into the public sewer network or adoptable drainage system (directly or indirectly). An alternative method of disposal of the land drainage runoff will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section with regard to the disposal of the filter drain/land drainage runoff.
- Cover slabs must carry the BSI Kitemark or will be rejected by Anglian Water Inspectors. Where the clear opening of the Kitemarked product is different to that of the cover and frame, a loading bearing slab should be fitted above the cover slab to bring the size down to 600mm x 600mm for the Anglian Water specified cover size. Please refer to Concrete Pipe Systems Association (CPSA), 'Technical Bulletin' issued Autumn 2004 for Kitemarked cover slab opening sizes.
- Sulphate Resistant cement (C20-DC2) and precast concrete products must be used or a laboratory report provided proving that such precautions are not necessary.
- The adoptable sewers should be a minimum of 1m and manholes 0.5m from kerf faces and service margins.
- Sewers must have 5.0m clearance from trees and hedgers. (refer to figure 2.3 on page 33 in Sewers For Adoption 6th Edition for restrictions on tree planting adjacent to sewers).
- All private work to be in accordance with current building regulations.
- Drains passing through buildings to be protected with lintel cover.
- No building to take place within 3.0m of an adoptable sewer.
- Where adoptable pipes have 150mm concrete bed and surround protection, all joints to be provided with 18mm thick flexible filler.
- No services to be sited over or within 1.0m of an adoptable sewer.
- Private drainage connections not direct to manholes are to be made via a 45 degree junction and not saddles.
- All adoptable sewer works and material to be in accordance with 'Sewers for Adoption' 6th Edition, the relevant British/European and Anglian Water Standards/Requirements/Addendum and Kitemarked.
- Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).

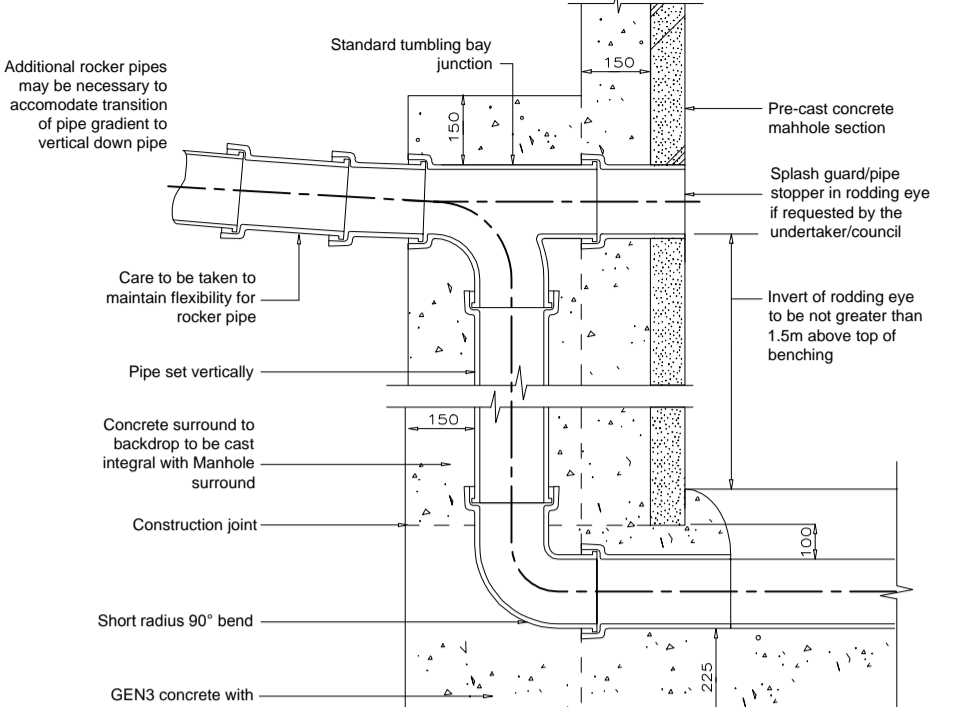
Typical Manhole Detail - Type A
Depth from Ground Level to Soffit of Pipe 3m to 6m



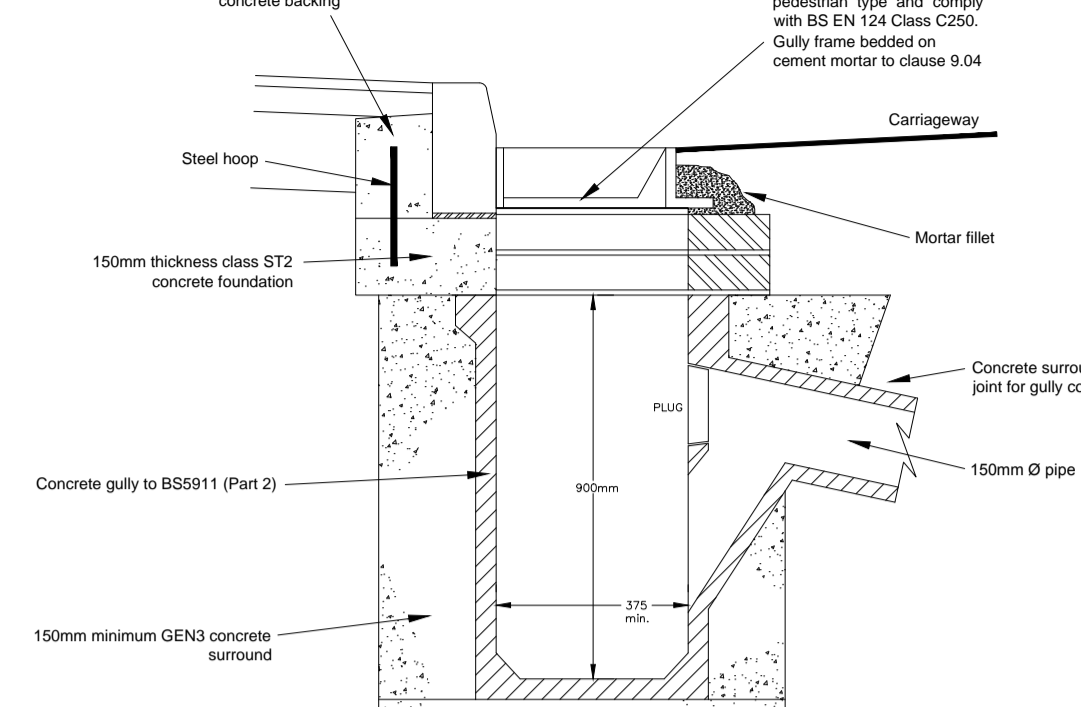
Typical Manhole Detail - Type B
Maximum Depth from Ground Level to Soffit of Pipe 3.0m



Typical Vertical Backdrop Detail
Note: Steeper gradients are preferred to the use of backdrops



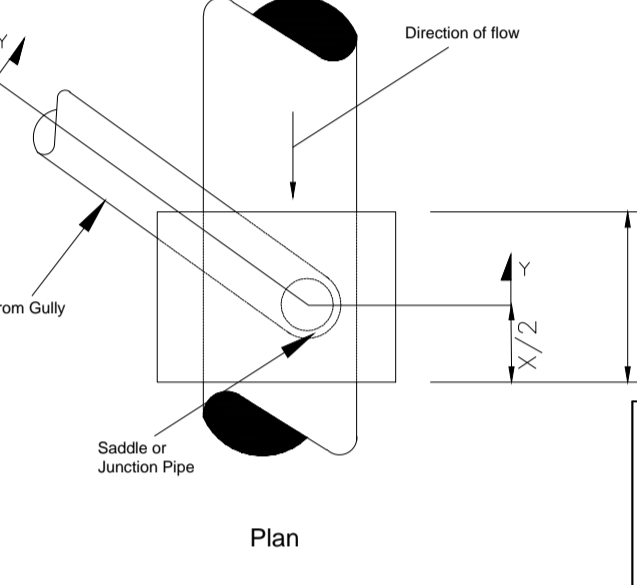
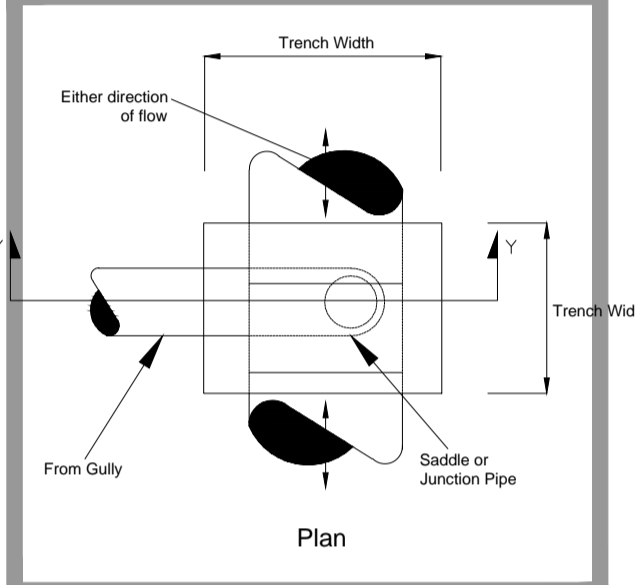
Precast Concrete Road Gully



Note: Where backdrop is not excessive a 45 degree drop pipe may be used

Figure A
Connection to Crown of Surface Water Sewer or French Drain

NOT ACCEPTABLE



ALL ADAPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH SEWERS FOR ADOPTION 6th EDITION, THE RELEVANT BRITISH/EUROPEAN AND ANGLIAN WATER STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED

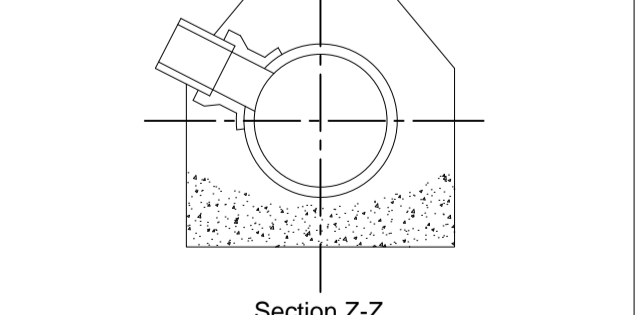
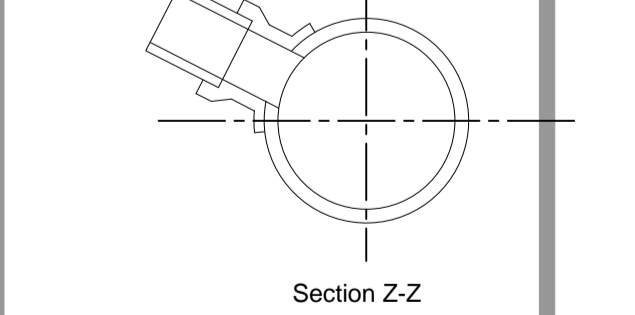
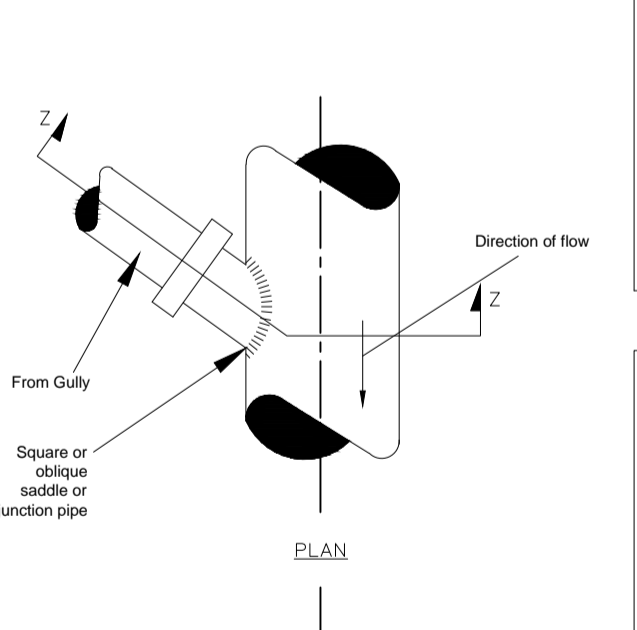
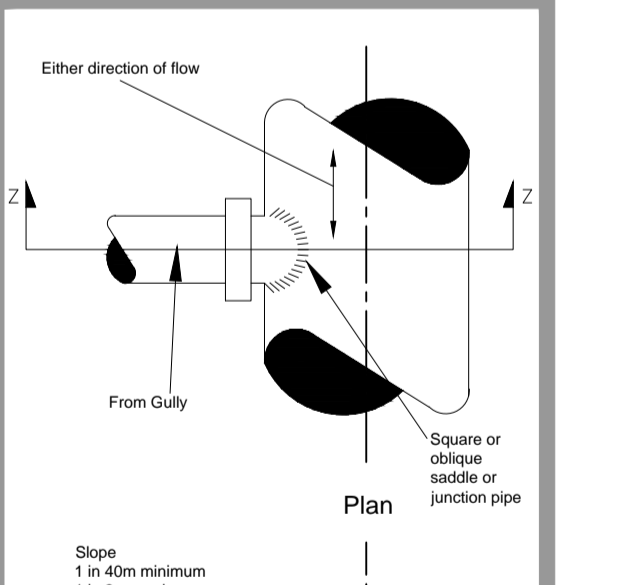
- Standard Drainage Notes:
- All dimensions in millimetres unless stated otherwise.
 - Except where otherwise indicated gully gratings and frames are to be set a level 6mm below finished carriageway level.
 - One vertical joint per course of brickwork shall be left open to allow drainage during construction.
 - The minimum depth from the top of grating to the top of gully outlet is to be 750mm when the connecting pipe is under carriageway and 600mm elsewhere.
 - All concrete and concrete products below ground to be sulphate resisting.
 - Gully pots are to be of pre cast concrete to BS911 Part 2. Gully pots shall be trapped and provided with hot dipped galvanised stopper and chain with bayonet type fixing.
 - Road gully gratings and frames to be Type C250 grate and frame, Kitemarked, heavy duty ductile iron to EN124: Part 1: 1995, non rock with captive hinge, 2 set on 2 courses of class B engineering brickwork bedded on class 1 mortar minimum depth of gully frame to be 100mm.
 - Class 1 mortar to Design (i) to SHW series 2400.
 - The contractor is obliged to obtain the necessary road opening and/or sewer connection licenses prior to work commencing on site.
 - Stainless steel clamping bands shall comply with water industry specification No. 4-41-01.
 - Junction pipe shall be salt glazed only.
 - For 150mm and 225mm diameter pipes, saddles are not acceptable. The connection into existing pipes should be via a proprietary junction piece inserted into the main pipe run, fixed with clamping bands.
 - Step irons to comply with all relevant provisions set out in BS1241 Part 1 or 2.

Chamber Note:

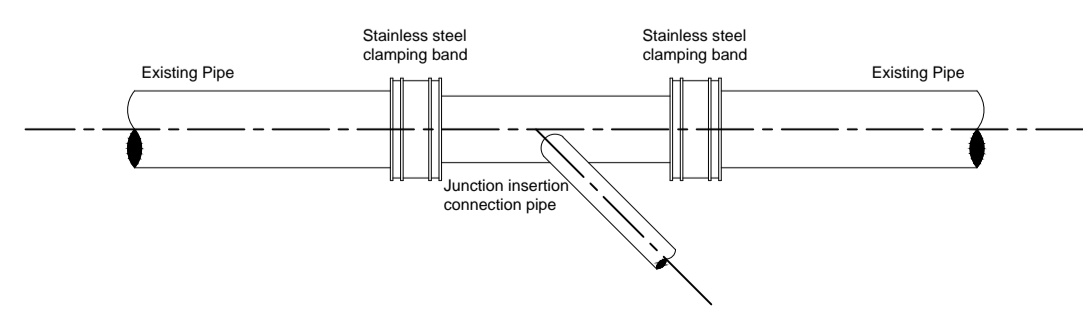
- 1.0 Chambers
- 1.1 Particular requirements are as follows:
- 1.1.1 For manholes and man entry catchpits
- A. Covers and frames shall comply with the following additional fitness-for purpose requirements:
- For MA60 access covers and frames with 675 x 675 eccentric clear opening:
- Frame may be grey iron or ductile iron, cover shall be ductile iron with double triangular configuration (non rock).
 - Minimum depth of manhole frame to be 150mm.
 - Bearing area of frame shall be solid and be not less than 100mm wide, with external corners of the bearing area being either square, curved or mitred shape in plan with the resulting bearing area width at that feature being not less than 95mm.
 - The solid bearing area of frame may have hand holes and drainage holes in any side of the frame providing that the total area of the holes in any one side does not exceed 600mm² and that no hole is situated within a quadrant of the bearing area of the frame at an external corner, such holes shall be positioned as near as possible to the external edge of the frame.
- For MA60 access covers and frames with 675 x 675 eccentric clear opening - (to HCD drawing No F3 application)
- Frame shall be ductile iron with double triangular cover configuration.
 - Frame shall be at least 100mm deep.
 - Bearing area of frame shall be solid and not less than 100mm wide.
- For MS2-6045 covers and frames
- Ductile iron cover and frame, single rectangular cover.
 - Frame shall be at least 75mm deep.
 - Bearing area of frame shall be not less than 75mm in width.
- 1.1.2 Ironwork on mortar bedding shall not be trafficked until mortar strength is expected to be 16N/mm².

Figure B
Connection to side of Surface Water Sewer or French Drain

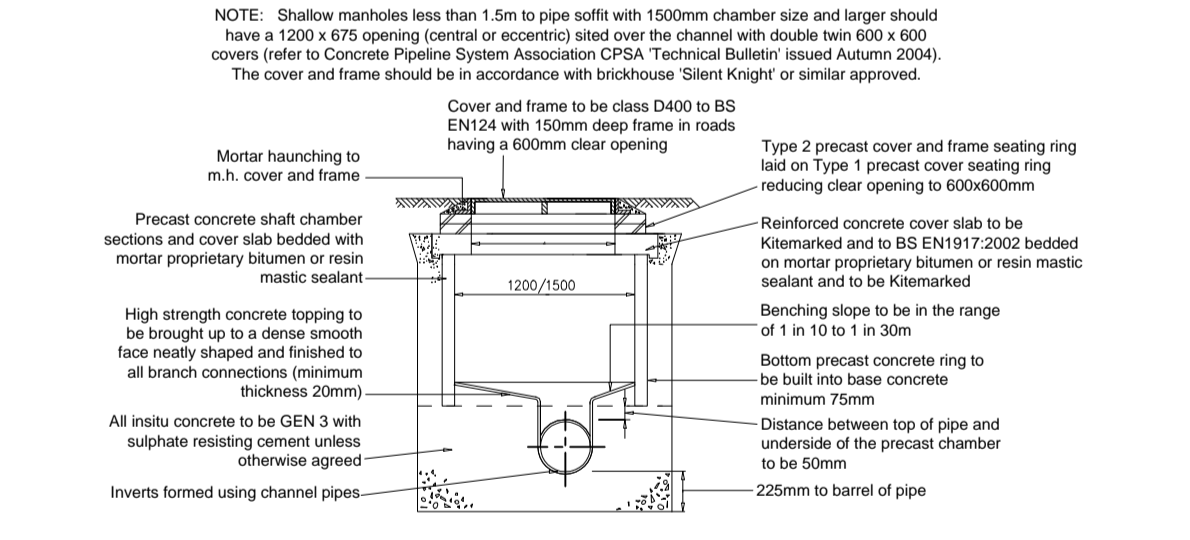
NOT ACCEPTABLE



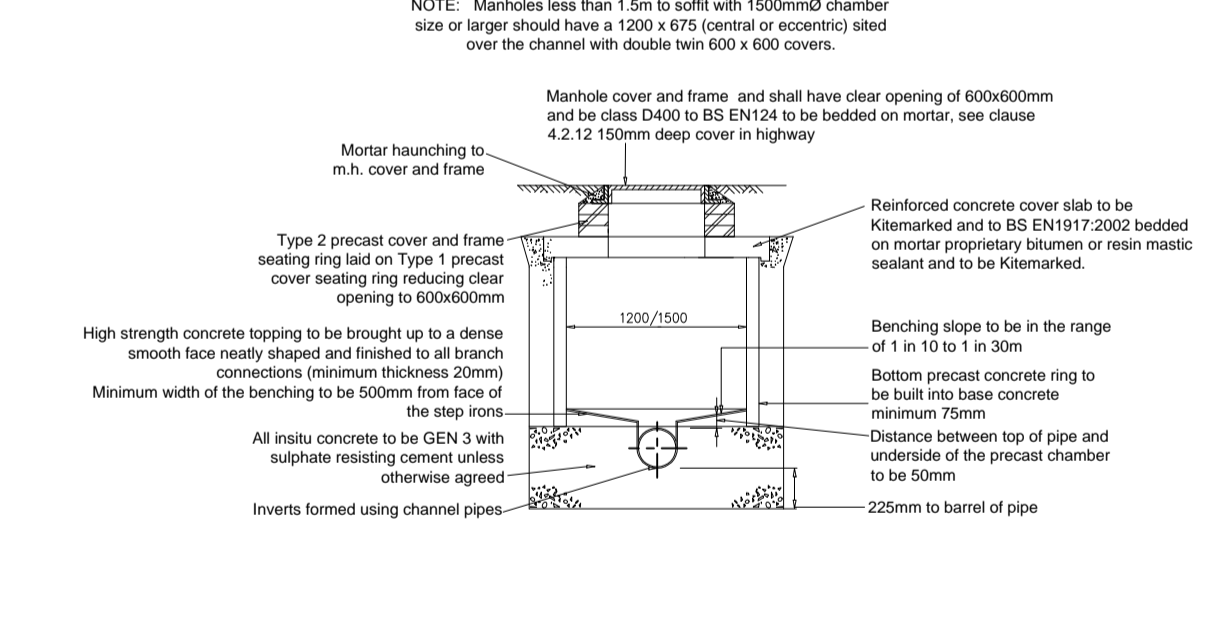
Proprietary Junction Piece



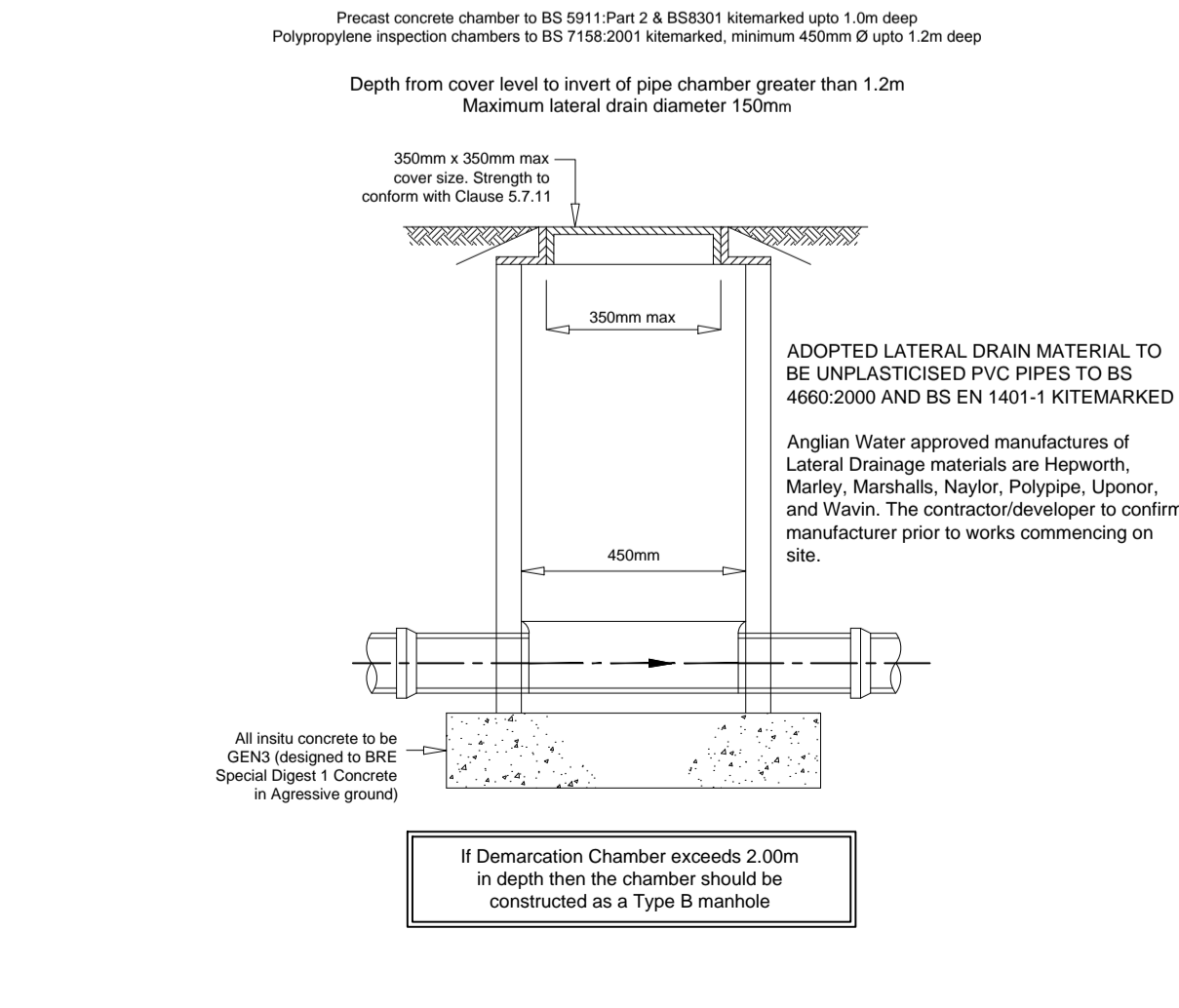
Typical Manhole Detail - Type E
Depth from Ground Level to Soffit of Pipe 1.0m to 1.50m
Maximum Sewer Diameter 375mm



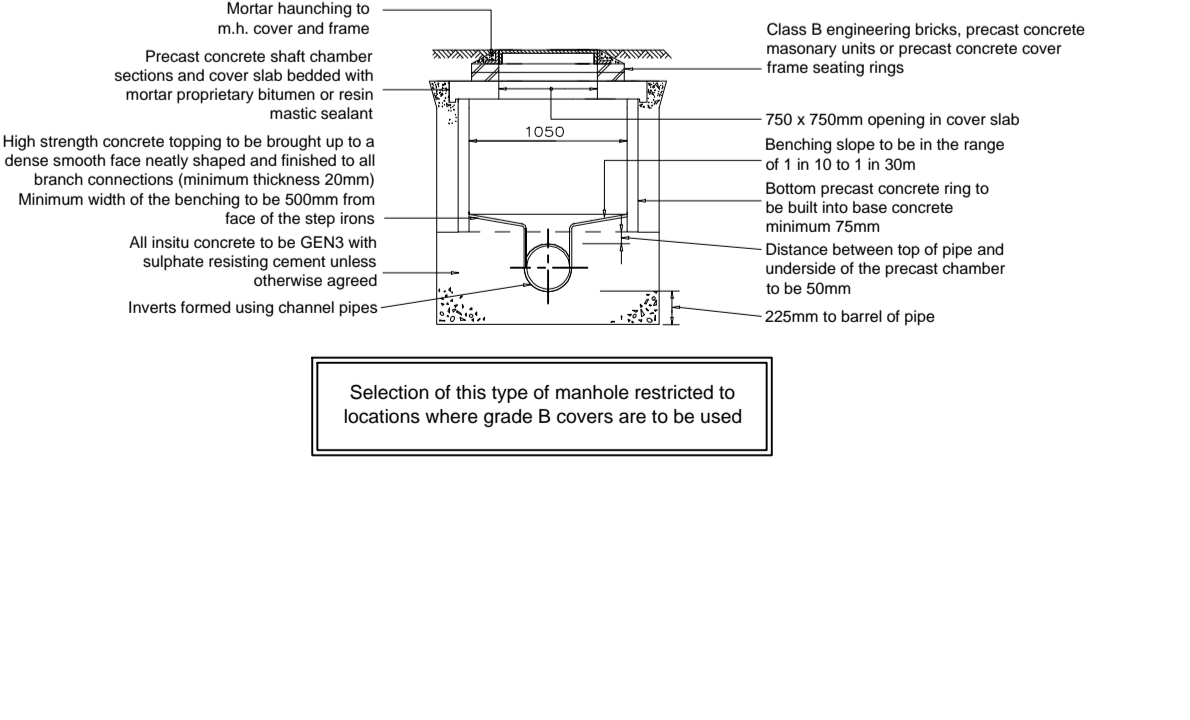
Typical Manhole Detail - Type B1/E
Depth from Ground Level to Soffit of Pipe Less than 1.5m



Typical Demarcation Chamber Detail



Typical Manhole Detail - Type G
Depth from Ground Level to Soffit of Pipe Less than 1.0m



Rev:	Description:	Date:	By:	Chkd:
Status:	PRELIMINARY			
Client:	CYDEN HOMES			
Project:	STATION ROAD KIRTON IN LINDSEY			
Dwg Title:	STANDARD DRAINAGE DETAILS			
ELLUC Projects				
ELLUC PROJECTS 423 KIRKSTALL ROAD AIREDALE HOUSE LEEDS LS4 2EW		t: (0113) 357 2100 info@ellucprojects.co.uk www.ellucprojects.co.uk		
Scale:	Size:	First Issue:	Drawn:	Checked:
as shown	A1	07.04.17	MA	GL
Drawing No: ELL/LE011/CH/L/500/008				