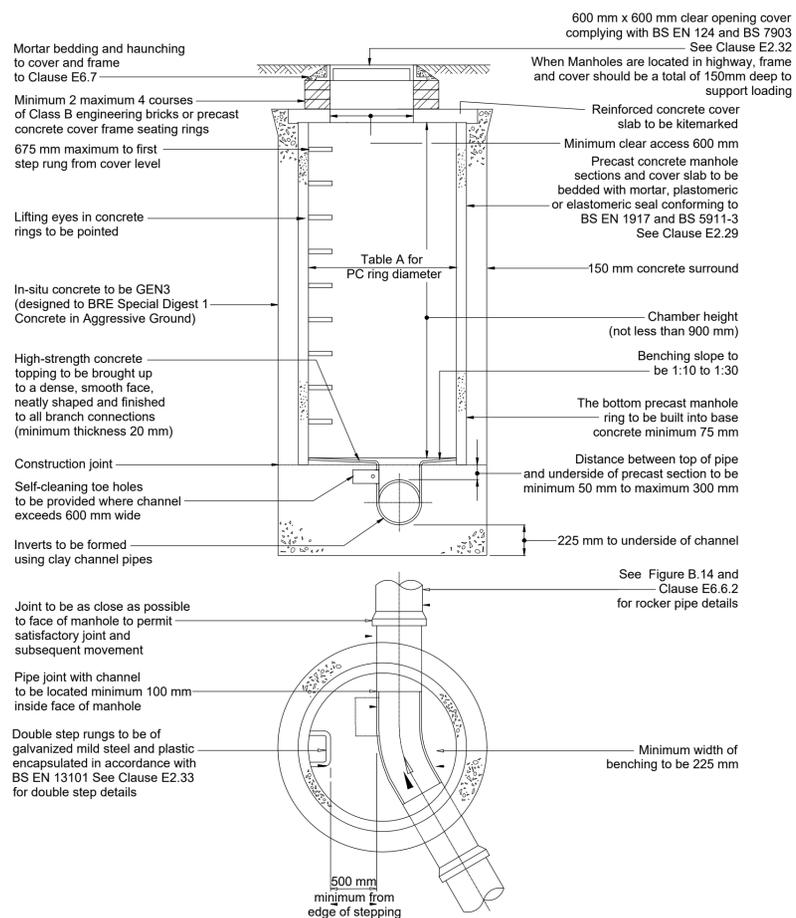


Notes

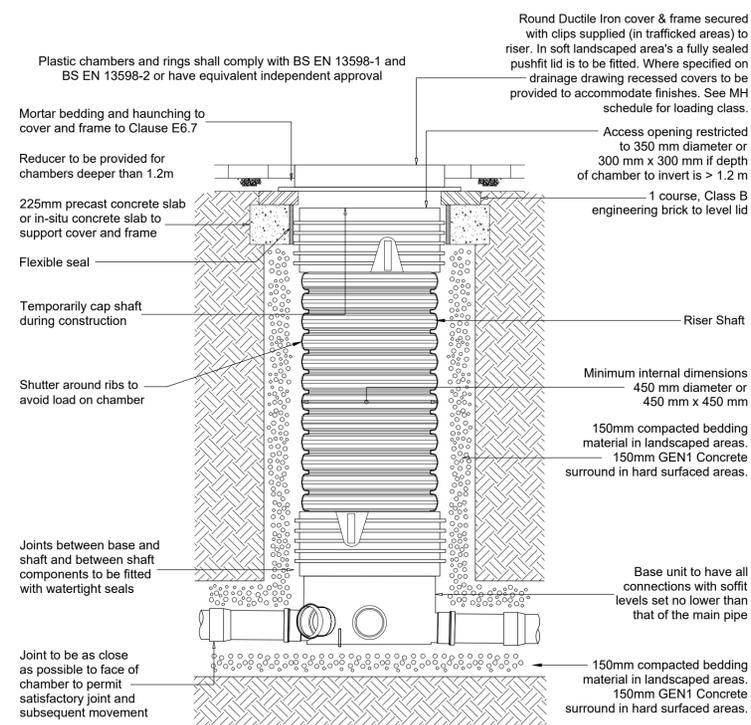
- For clauses refer to Sewers for Adoption 7th Edition.
- The developer should take all necessary precautions to avoid causing any damage to, or interference with flow in existing sewers and shall ensure that debris, silt, mud etc. do not enter the sewer.
- Where works are to be carried out on sewers, the contractor must carry out their works in accordance with "The classification and management of confined spaces" published by Water UK. They must also comply with all other relevant health and safety legislation/documentation.
- All materials are to be stored in such a manner as to preserve their quality as to the standard specified in the specification.
- All concrete to be produced on site must be mixed with only potable water, to ensure that it is clean from dirt and contaminants.
- Aggregates for concretes shall comply with the relevant provisions of BS EN 12620 and PD 6682-1.
- Sands for mortar and grouts shall be washed sand, complying with BS EN 13139 and PD 6682-3. All other sands are to comply with BS EN 12620 and PD 6682-1 or BS EN 13139 and PD 6682-3.
- Pulverised-fuel ash (PFA) for use as a component material in emmentitious grout our non structural concrete shall comply with BS 3892-2 & 3.
- Vertified clay pipes and fittings for sewers shall have flexible mechanical joints. Pipes for foul sewers and surface water sewers shall comply with the relevant requirements of BS EN295 and BS65 (Surface water pipes only).
- Pre-cast concrete manhole units of circular cross section for manholes, chambers and wet wells shall comply with the relevant provisions of BS EN 1917 and BS 5911-3.
- Ladders for manholes in a vertical plane are to be mild steel and comply with BS4211, Class A and PD 970.
- GRP ladders shall be manufactured in accordance with BS EN 131, and from glass-reinforced polyester using an appropriate resin for the ladder location. Unidirection reinforcement shall be provided in the GRP matrix to maximise strength.
- Manhole covers and frames shall comply with the relevant provisions of BS EN 124, BS 7903 and Highways Agency guidance document HA 104/02. They shall be of a non-rocking design which do not rely on the use of cushion inserts.
- Clay bricks to be used within manholes are to be solid, Class B Engineering bricks complying to BS 3921.
- All bricks shall be frost resistant category F.
- Standard concrete mixes should be in accordance with BS EN 206-1 and BS 8500 and shall be used with a 20mm nominal maximum size of aggregate and a slump class of S2 for a target of 70mm.
- GEN1 concrete to be used for, fillings, blindings, soft spots and drainage slumps. GEN3 concrete to be used for, all other applications. U.N.O.
- Admixtures (including calcium chloride and pigments) shall not be used in the production of concrete.
- High strength concrete topping shall be produced, laid and finished in accordance with the relevant provisions of BS 8204: part 2 and the following approximate mix proportions shall be used: 1part cement, 1part natural sand and 2parts single-sized coarse aggregate.
- All mortar mixes shall be in accordance with BS 5628-1:2005.
- All pipes to be either extra strength VC to BS 65 or PVC to BS 4660 or BS 5481 "UPONOR ULTRARIB" or concrete pipes to strength class 120.



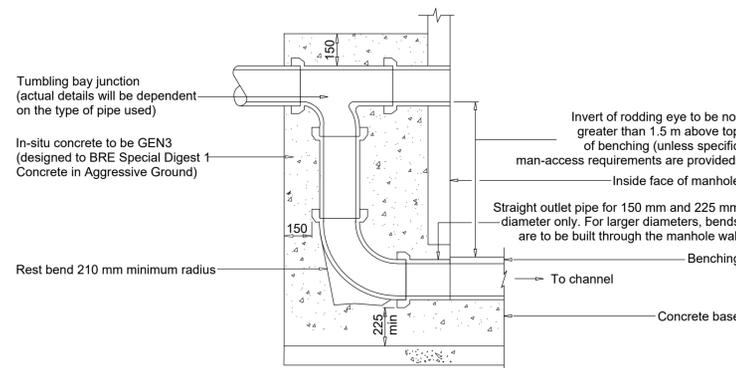
Conc. Typical Manhole Chamber Detail NTS

| Nominal Internal Diameter of Largest Pipe in Manhole (mm) | Minimum Nominal Internal Dimension of Manhole (mm) |
|---|--|
| Less than 375   | 1200   |
| 375 - 450   | 1350   |
| 500 - 700   | 1500   |
| 750 - 900   | 1800   |
| Greater than 900  | Pipe diameter + 900                                |

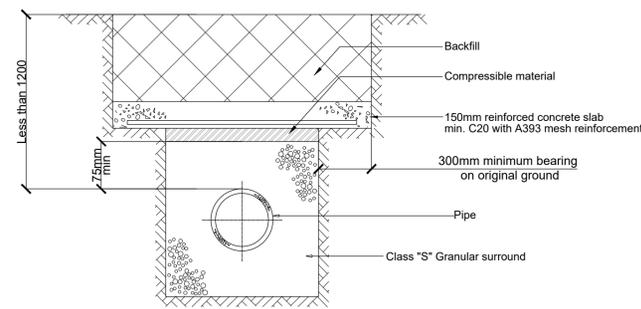
Type A & B - Manhole Diameters Table



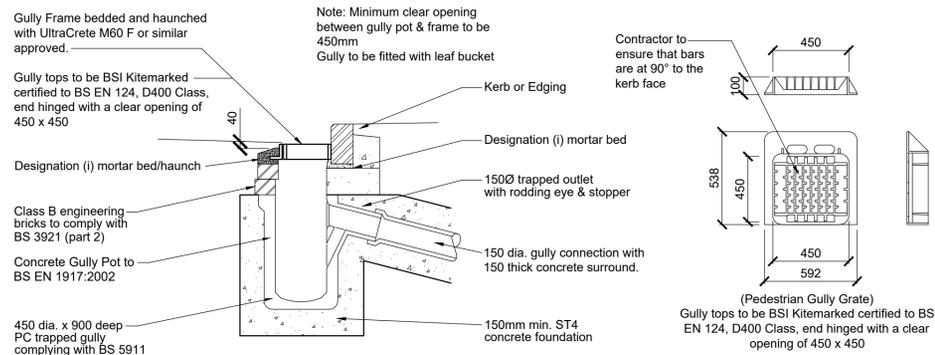
Typical PPIC Manhole Detail NTS



Typical Vertical Backdrop Detail NTS



Protection of Pipes Laid at Shallow Depths NTS



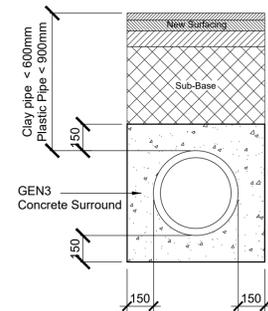
Carriageway Gully Detail NTS

Road Gully Grating NTS

| PIPE SIZE   | AGGREGATE  |
|-------------|--|
| 1000        | 10mm SINGLE SIZE   |
| 1500        | 10mm OR 14mm SINGLE SIZE OR 14mm TO 5mm GRADED                       |
| 2250 - 5250 | 14mm OR 20mm SINGLE SIZE OR 20mm TO 5mm GRADED OR 14mm TO 5mm GRADED |

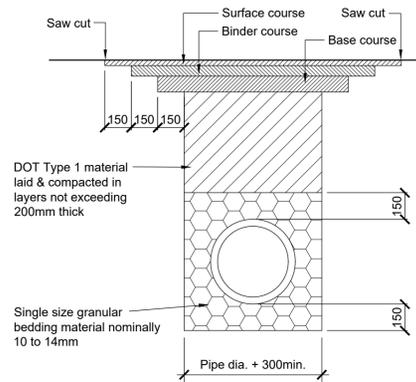
NOTE \* 150mm OR 1/4 OF THE O.D. (OUTSIDE DIAMETER) WHICH EVER IS GREATER. FOR CONCRETE PIPEWORK 200mm OR 1/4 OF O.D. WHICH EVER IS GREATER.

Class "S" Pipe Bedding Detail (Typical unless noted otherwise) Scale 1:20



Concrete Surround Detail (Hardstanding areas) Scale 1:20

("Flexcell" compressible board to be used at all pipe joint locations)



Carriageway Reinstatement Detail Scale 1:20

|                        |     |     |     |            |
|------------------------|-----|-----|-----|------------|
| Issued for Information | JJH | P02 | JC  | 07.09.2022 |
| Issued for Pricing     | JJH | P01 | JC  | 17.08.2022 |
| AMENDMENT              | BY  | REV | CHK | DATE       |

Rev P = Preliminary T = Tender C = Construction LCI = Last Construction Issue

In instances where this drawing completes or partly completes a contract, Billingham George & Partners will consider that it's product has been validated, unless in a period not exceeding 90 working days, the client advises to the contrary.



Billingham George & Partners

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|        |                          |
|--------|--------------------------|
| Client | Copeland Borough Council |
|--------|--------------------------|

|         |                                 |             |         |
|---------|---------------------------------|-------------|---------|
| Project | Cleator Moor Innovation Quarter | Project No. | 21T2034 |
|---------|---------------------------------|-------------|---------|

|               |                        |  |  |
|---------------|------------------------|--|--|
| Drawing Title | BOC - Drainage Details |  |  |
|---------------|------------------------|--|--|

| Drawn | Date     | Checked | Date     | Size | Scale    | Class. | Rev. |
|-------|----------|---------|----------|------|----------|--------|------|
| JJH   | Aug 2022 | JC      | Aug 2022 | A1   | As Noted | S2     | P02  |

| Location | Originator | Volume | Level | Type | Role | Unique No. |
|----------|------------|--------|-------|------|------|------------|
| CMIQ     | BGP        | 04     | XX    | DR   | C    | 04135      |

File Reference  
CMIQ-BGP-04-XX-DR-C-52-04135