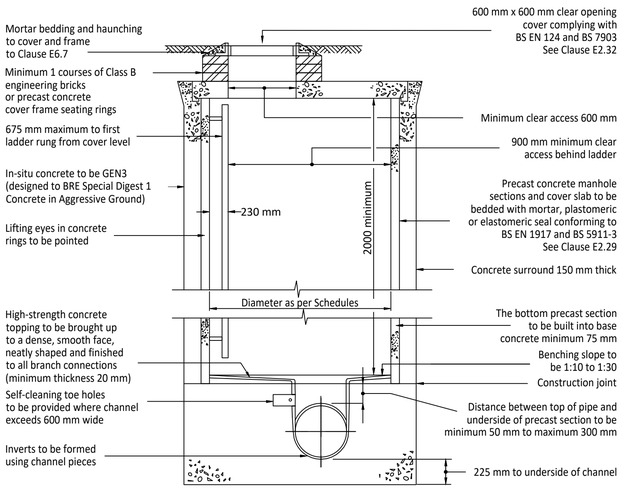
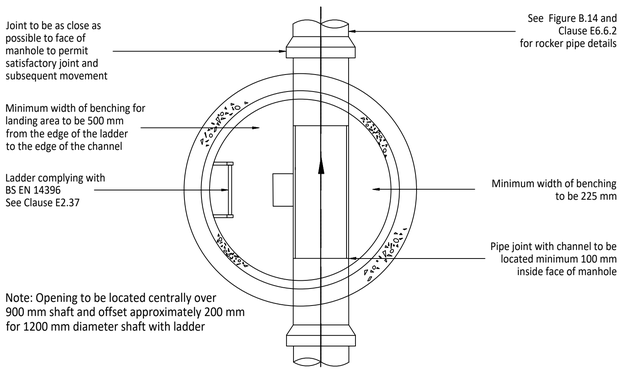
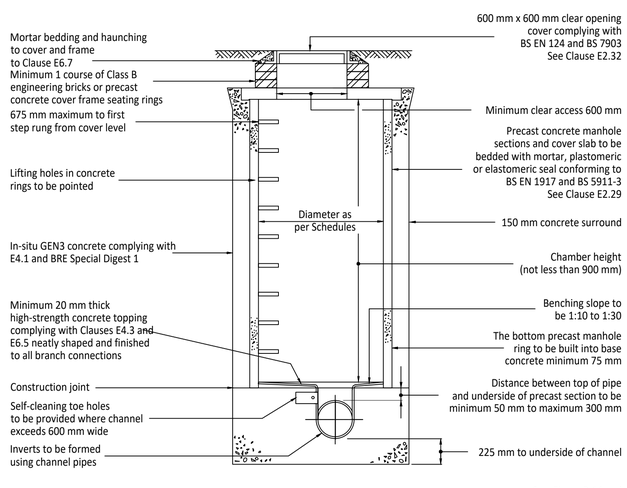
## ADOPTABLE MANHOLE DETAIL - TYPE A
### Depth from cover level to soffit of pipe 3 m to 6 m

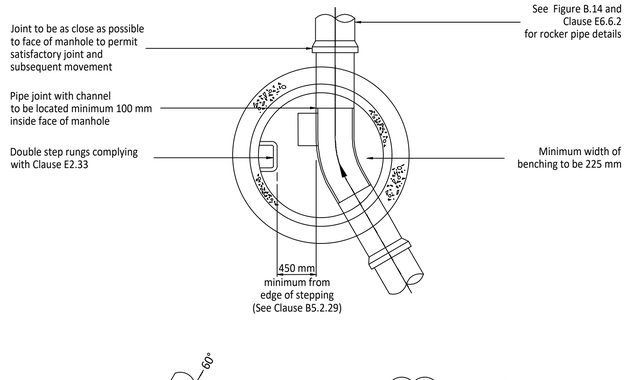


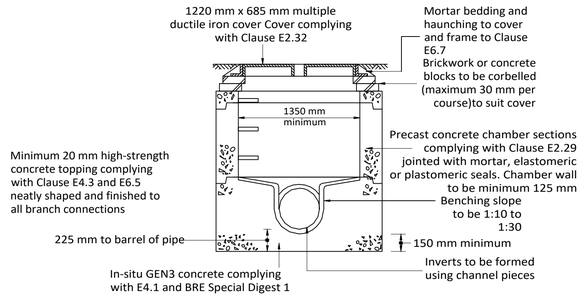

Note: Opening to be located centrally over 900 mm shaft and offset approximately 200 mm for 1200 mm diameter shaft with ladder

## ADOPTABLE MANHOLE DETAIL - TYPE B
### Depth from cover level to soffit of pipe 1.5m to 3.0 m

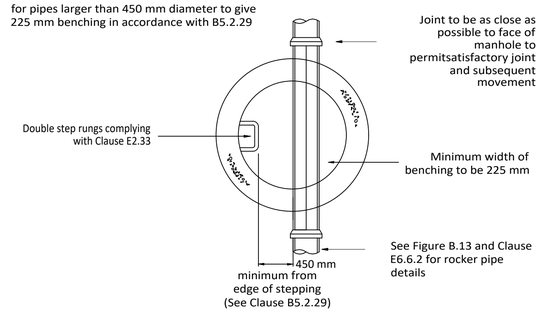


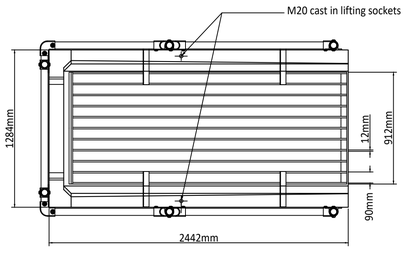

## Typical manhole detail - Type C
### Depth from cover level to soffit of pipe less than 1.5 m
### Rigid material construction

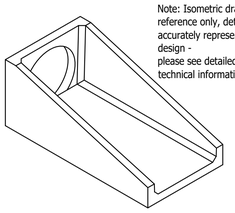



Internal dimensions of manhole normally 1350 mm but manhole diameter should be increased for pipes larger than 450 mm diameter to give 225 mm benching in accordance with B5.2.29

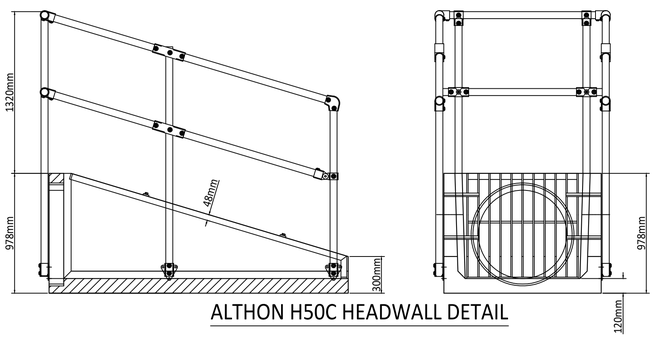



Note: The use of precast concrete chamber units to E2.29 with 150 mm GEN3 in-situ concrete complying with E4.1 and BRE Special Digest 1 in place of brickwork construction is permitted.

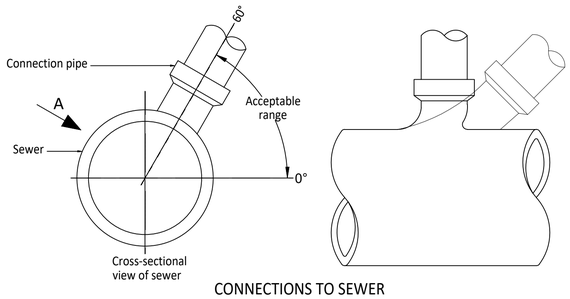


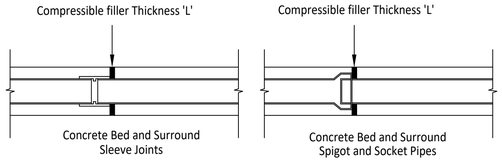
Note: Isometric drawing is for reference only, details may not accurately represent actual design - please see detailed views for technical information



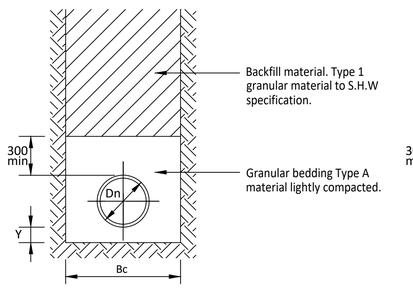

ALTHON H50C HEADWALL DETAIL



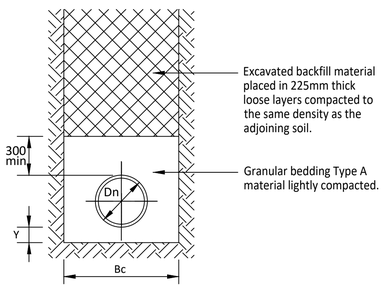

CONNECTIONS TO SEWER
Not to scale




FLEXIBLE JOINT DETAILS




CLASS S BEDDING
( On trafficked areas )




CLASS S BEDDING
( Verges & Landscaping )

## GRANULAR BEDDING

| Nominal bore of pipe (mm) | Alternative Aggregate sizes (mm) | |
|---|---|---|
| | Single sized | Graded |
| 100 | 10 | - |
| 150 | 10 or 14 | 14-5 |
| 225-300 | 14 or 20 | 14-5 or 20-5 |
| 375-525 | 14 or 20 | 14-5 or 20-5 |
| >525 | 14, 20 or 40 | 14-5, 20-5 or 40-5 |

Granular bedding for pipes and backfilling material for temporary drains (trench sub-drains) shall consist of aggregates from natural sources to BS EN 13242 and BS EN 1744-1 or sintered pulverised fuel ash complying with the relevant provisions of BS 3892; sized in accordance with the above table

Selected fill material, whether selected from locally excavated material or imported, shall consist of uniform, readily compactible material, free from vegetable matter, building rubbish and frozen material, or materials susceptible to spontaneous combustion, and excluding clay of liquid limit greater than 80 and/or plastic limit greater than 55 and materials of excessively high moisture content. Clay lumps and stones shall be retained on 100mm and 40mm sieves respectively.

## TRENCH WIDTHS & KEY DIMENSIONS

| Dia Dn (mm) | Width Bc (mm) | | Y(mm) | | L(mm) | Z Min (mm) |
|---|---|---|---|---|---|---|
| | Max | Min | Y1 (Uniform Soil) | Y2 (Rock) | | |
| 100 | 550 | 450 | 100 | 200 | 18 | 150 |
| 150 | 600 | 490 | 150 | 200 | | 150 |
| 225 | 700 | 580 | 150 | 200 | | 150 |
| 300 | 750 | 680 | 150 | 200 | | 150 |
| 375 | 1050 | 950 | 150 | 200 | | 150 |
| 450 | 1150 | 1030 | 150 | 200 | | 150 |
| 525 | 1200 | 1120 | 150 | 200 | 36 | 150 |
| 600 | 1350 | 1240 | 150 | 200 | | 150 |
| 675 | 1450 | 1330 | 150 | 200 | | 225 |
| 750 | 1500 | 1400 | 150 | 200 | | 225 |
| 825 | 1600 | 1490 | 150 | 225 | | 225 |
| 900 | 2100 | 1900 | 150 | 225 | | 225 |
| 975 | 2150 | 1950 | 175 | 250 | | 300 |
| 1050 | 2250 | 2050 | 175 | 275 | | 300 |
| 1200 | 2500 | 2250 | 200 | 300 | | 300 |
| Over 1200 | O.D+1000 | O.D+800 | I.D/6 | I.D/4 | 54 | 400 |

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GENERAL DRAINAGE NOTES:

1. All sewers to comply with the requirements of the water authorities publication "Design and Construction Guidance, Version 2.1" together with Independent Water Network Addendum.
2. All public sewers are to be the subject of a Section 104 agreement of the Water Industry Act 1991.
3. Invert levels of existing manholes and sewers are to be checked on site before construction commences and results reported to engineers.
4. All manhole ironworks to comply with BS EN124, and be stamped with BSI Kitemark. Covers to suit loading as below:
   - -Carriageways and Roads - E600
   - -Driveways and Verges - C250
   - -Footways and Pedestrian Areas - B125
   - -Gardens/Landscaping - A15
5. All sewer pipes, up to, and including 225mm are to be vitrified clay to BS EN295. All sewer pipes 300mm diameter and above to concrete pipes to BS EN1916.
6. All drainage shall be installed and tested strictly in accordance with the Manufacturers' printed instructions, BS EN 752, BS EN 1601, Local Water Authority requirements and the Building Regulations.
7. All bedding shall be Class S unless noted otherwise.
8. All trenches under existing and proposed public highways are to be backfilled with thoroughly compacted Type 1 granular sub-base material.
9. Drainage laid beneath roads and areas of vehicular access (car parking etc) with less than 1200mm of cover shall be encased in concrete bed and surround with associated movement joints. Drainage laid beneath paths, footways and pedestrian areas with less than 900mm of cover shall be similarly treated.
10. Chambers with outgoing pipes greater than 600mm diameter shall be fitted with guard bars, safety chains or other approved safety devices.
11. The use of precast concrete products made with sulphate resisting cement is mandatory, unless a laboratory report proves such precautions are not necessary.
12. All gully connections to use a minimum diameter pipe of 150mm and to be surrounded by a minimum of 150mm of grade C8/C10 concrete over its full length (which should not exceed 15m) and its connection to the carrier system.

H50C HEADWALL DETAILS:

- All dimensions in mm
- All measurements ± 1mm

Specification Information
- Opening in back wall cast to suit outside diameter of the pipework
- Invert level of pipe can be set to your specification

Headwall Installation
Units should be bedded on minimum 150mm of semi-dry concrete.
Sit the headwall level or with a slight fall 1:50 from pipe to spill mouth.

Handling
A. Weight of concrete is based on 2.4 tonne/m³+5% is recommended for sizing lifting equipment.
B. All lifting points shall be used as specified below - Anchor points & loops - Total Qty: 2
C. Unit to be lifted as per lifting diagram

Concrete
A. Mix ref: Self-compacting DC4/DS4 Mix
B. Lifting strength based on 2 cubes = 20N/mm²
C. Characteristic 28 day cube strength = 50N/mm²
D. Concrete provides Design Chemical Class 4 (DC4) to special Digest 1, Table F2.

Reinforcement
A. Reinforcement to BS EN 13369
B. Scheduling, dimensioning, bending & cutting to BS8666
C. Cage to be machine tied with steel wire

Manufacture
A. Manufacture to BS EN 15258:2008 precast concrete products - Retaining wall elements, Factory Production Control certificate number: 0086-CPR-650448 & BS EN 13369
B. Tolerances to BS EN 13369 clause 4.3.1.1
C. Marking: Units shall be indelibly marked to show:
- Mould reference code
- De-mould date
- Job reference number & unique product number
- Unit weight (kg)

Design
A. Concrete design to EC2
B. Althon have designed the concrete units only, the site conditions should be assessed for suitability by the scheme designer
C. Units are designed to withstand a vertical live load surcharge of 10kN/M²
D. Weight of soil = 18kN/M²
E. Angle of internal friction = 30 Deg.
F. Design Life: >50 years

Fabrication Specification
A. Manufacture IAW EN 1090-2 EXC CLASS 1
B. Material grade is to be: BS EN 10025 S275
C. Welding carried out IAW EN 1090-2 PARA 7.5.4 - 7.5.18
D. All fillet and butt welds to have a minimum throat thickness of 6mm & joints to be fully welded where possible.
E. Ensure vertical flats are fully welded both sides where possible.
F. All sharp edges and burrs are to be removed.
G. Remove all weld splatter.
H. Holes by punching are permitted with reaming.
I. Galvanising is carried out after fabrication to BS EN:ISO 1461

Handrail Specification
A. Kee Klamp® Galvanised Size 8 Fittings
B. Size 8 48.3mm OD 3.2mm Wall Thickness Galvanised Medium Duty Tube to BS EN 10255
C. 360N/m Design Load at stated in BS 8118, BS 6180, BS 6399 & BS 7818, Civil Engineering Specification for the Water Industry (CESWI) 7th Edition Clause 2.60 Handrails & Balusters & The Engineering Equipment and Materials Users' Association (EEMUA) Publication 105 7th Edition Factory Stairways, Ladders and Handrails
D. Other design loads available on request
E. GRP/FRP Handrails also available

| Rev | Date | Description | Drawn | Checked |
|---|---|---|---|---|
| A | 12.25 | FIRST ISSUE | AS | RF |

Abley Letchford
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Client
MILLER HOMES

Project
SOUTH WOKINGHAM SDL PHASE 2B R7 & R13 RESERVED MATTERS APPLICATION

Title
DRAINAGE CONSTRUCTION DETAILS SHEET 1

Status

| Scale | Date | Drawn | Checked |
|---|---|---|---|
| AS SHOWN @ A1 | DEC 2025 | AS | RF |

Drawing No: A389-R7&R13-RM-511
Revision: A