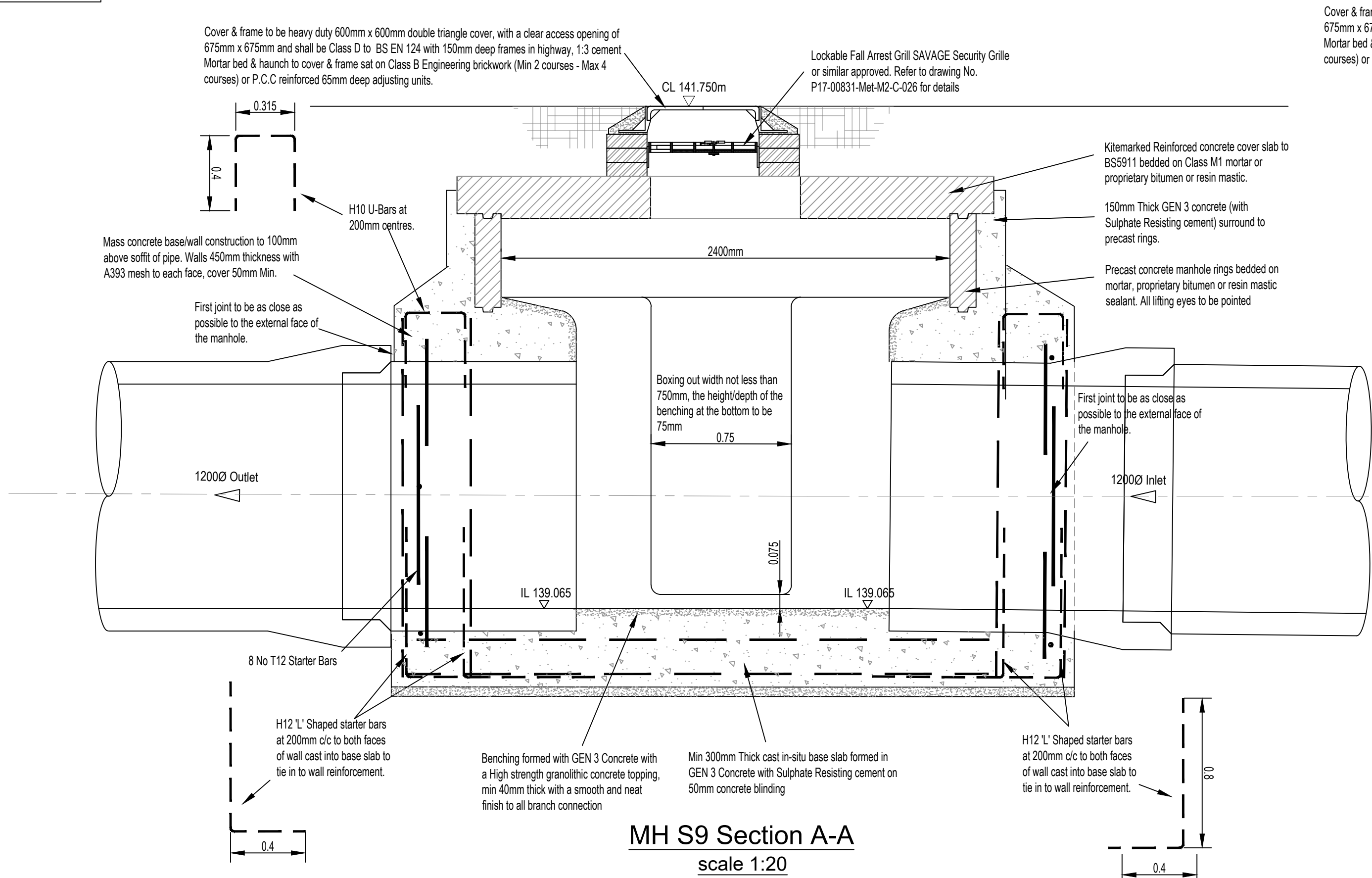
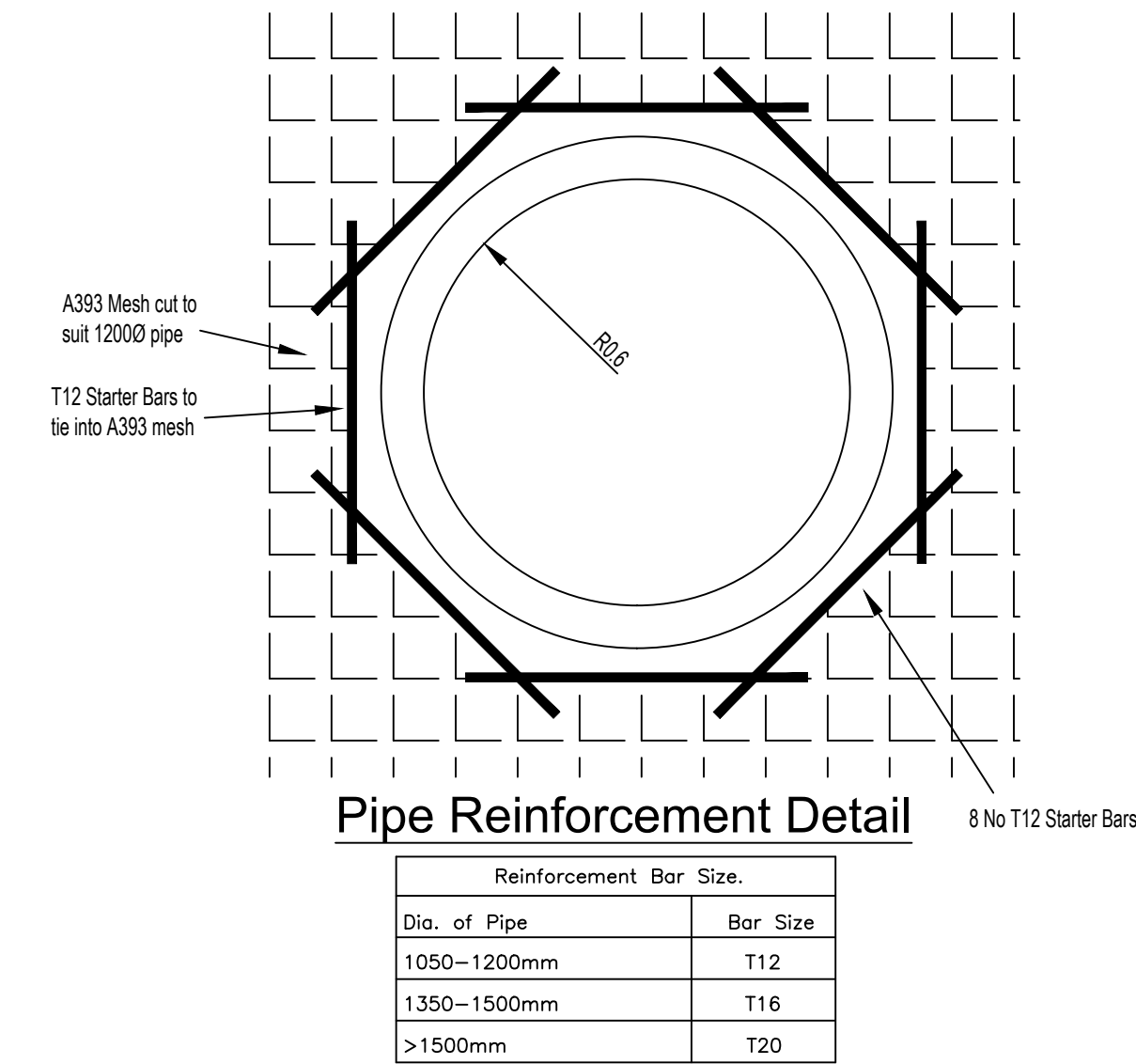
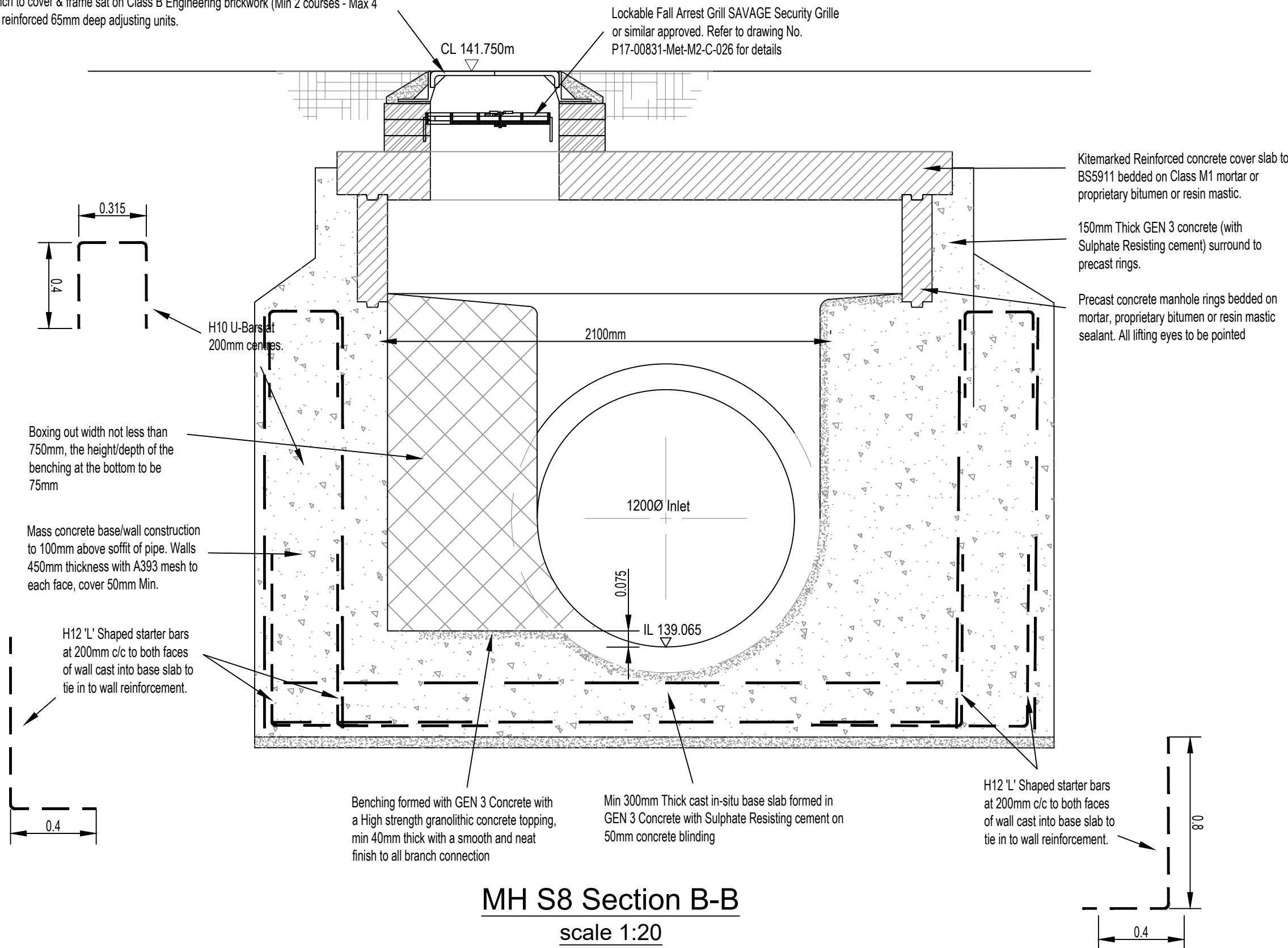




Cover & frame to be heavy duty 600mm x 600mm double triangle cover, with a clear access opening of 675mm x 675mm and shall be Class D to BS EN 124 with 150mm deep frames in highway, 1:3 cement Mortar bed & haunch to cover & frame sat on Class B Engineering brickwork (Min 2 courses - Max 4 courses) or P.C.C reinforced 65mm deep adjusting units.



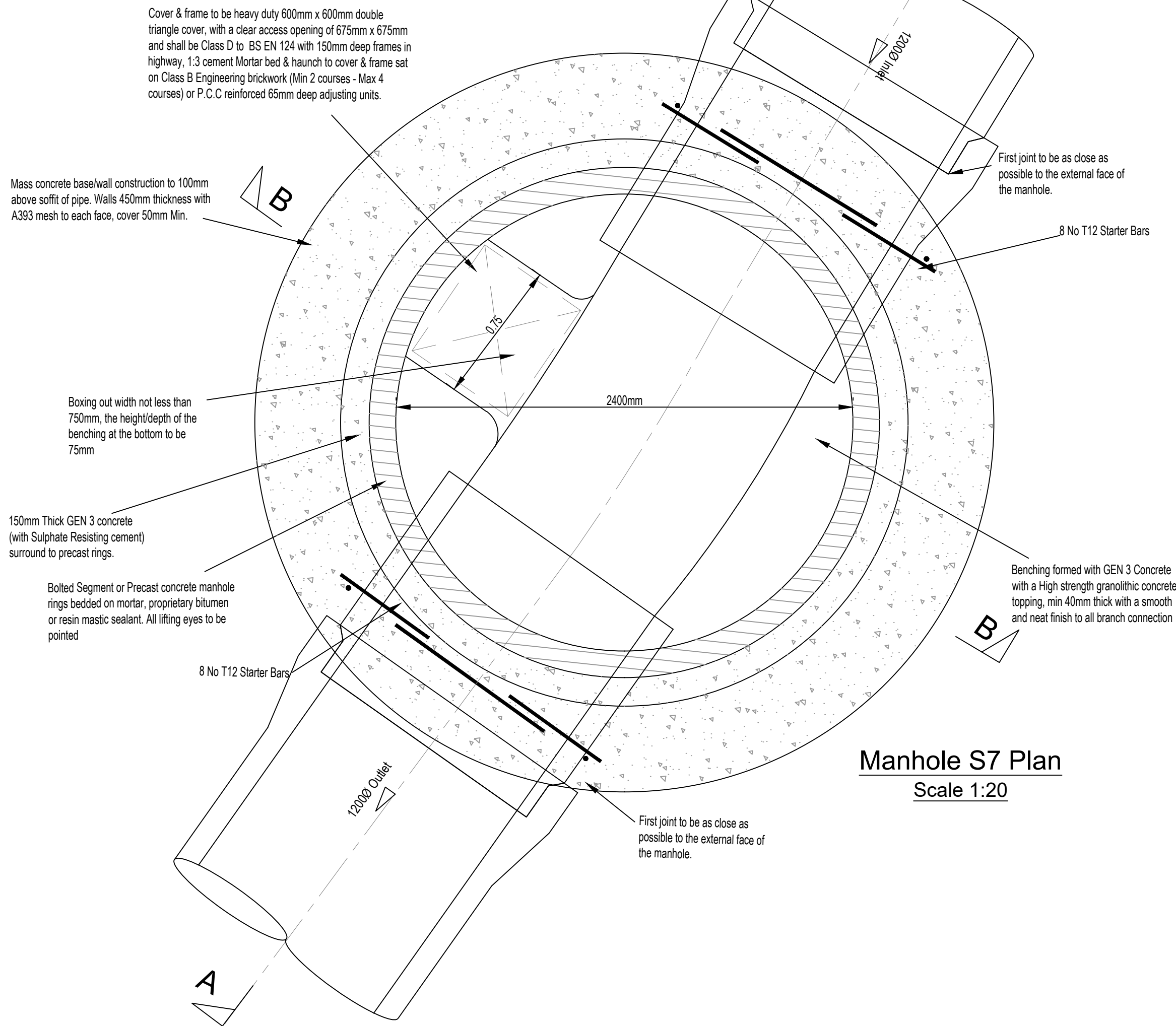
The benching to manholes shall be boxed-out and benched in accordance with Standard Manhole details and the following conditions:-

- Where access into manholes is restricted and the required headroom can not be achieved.
- Where the pipe internal diameters are 1050 or greater.
- The width of Boxed-out benching shall be 750mm.
- Access ladders or step irons must continue in accordance with standard manhole details.

All boxing-out of the benching with manholes shall be approved by Yorkshire Water before work commences (Minimum Width of Boxing out shall be 750mm)

Positions and sizes of openings in cover slabs - CPSA Technical Bulletin		
Shaft/chamber size DN	Manhole less than 1.5m depth	Manhole greater than or equal to 1.5m depth
900	600x600 central	600x600 central
1050	750x750 central	600x600 eccentric
1200	600x600 eccentric	600x600 eccentric
1500	1200x600 central	600x600 eccentric
≤1800	1200x600 eccentric	600x600 eccentric

Cover slabs with 675mm x 675mm openings are now kite marked products. For a 600mm x 600mm opening at ground level, an adjusting unit can be used to reduce the size of the opening. DN 900 manhole shaft sections are the minimum size permitted, with access only by winch, not steps or ladders. As DN 1200 manholes meet the requirements of all applications it is likely to become the shaft size of preference in the future. With the publication of the European Standard for concrete pipeline products, manholes with double steps having been phased out from October 2004.



All custom-built ironwork to be hot-dipped galvanised prior to final fixing

All adoptable sewer works and material to be in accordance with "Sewers for Adoption 6th Edition, The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked".

This drawing is to be read in conjunction with the Typical Manhole Construction Detail DWG No. P17-00831-Met-M2-C-018

General Concrete Notes:

- Concrete to Reinforced Base & Walls to be RC40/50 (C40/50, Sump Class S3)
- Concrete to Reinforced Concrete Cover Slab to be design mix BS8500-2 to be C45/55 (Sump Class S3), Water to Cement Ratio 0.35, Min Cement Content 380kN/m³, Max Aggregate size 20mm, Cement Type CEM1.
- Concrete to Mass Concrete Benchings to be GEN3 (C16/20, Slump Class S3).
- Reinforcement to be accurately placed and securely fixed in position using adequate spacer blocks and tie wires to ensure no movement during placement of concrete.
- Minimum Cover to Reinforcement to be 50mm.
- Minimum lap - 40 times bar diameter.

- Do not scale dimensions from this drawing in either paper or electronic format.
- To be read in conjunction with all relevant Engineer's, Architect's and Other drawings and specifications.
- All building products to be used in strict accordance with the manufacturer's recommendations.
- Any discrepancies are to be reported to the Engineer immediately.
- Main Contractor to provide a detailed method statement for all works prior to commencement on site.

SEWERS FOR ADOPTION 6th EDITION:

- All adoptable sewer works and material to be in accordance with "Sewers for Adoption" 6th Edition, The Relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and Kitemarked.
- 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 Yorkshire Water before any sewer works are carried out.
- Yorkshire Water is **not** obliged to accept filter drain/land drainage run-off into the public sewer network or adoptable drainage system (**directly or in-directly**). An alternative method of disposal of the land drainage run-off 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 run-off.
- Cover slabs must carry the BSI Kitemark or will be rejected by Yorkshire Water Inspector. 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 Yorkshire 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 kerb faces and service margins.
- "Sewers must have 5 metres clearance from trees and hedges (**please also refer to Figure 2.3 on page 33 in "Sewers for Adoption" 6th Edition for restrictions on tree planting adjacent to sewers**)".
- 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 none vehicular access areas**) then a concrete slab should be provide above granular bed and surround.
- Bedding and backfill material to conform to the requirement of Water Industry Specification 4-08-02 (**Table A2**).
- The chamber size of manholes with more than one connection in them may need to be increased an increment to accommodate the connections and bends.
- Yorkshire Water policy is not to accept Type "C" brick manholes and 1050mm dia manhole rings. Instead it is preferred that you use a type "B" manhole with 1200mm dia or 1500mm dia rings, with the opening sited over the channel where depth of cover to pipe soffit is 1 - 1.5m.
- Adoptable plastic sewer pipes to be BSI Kitemarked (**certified to WIS 4-35-01 and BS/EN13476**). Adoptable plastic sewer pipes to be laid in maximum 3 metre lengths unless there is a specific operational need to lay longer lengths. Plastic channel sections in manholes are not acceptable and Yorkshire Water would prefer clayware channel in manholes. We have found that plastic channels are difficult to set in concrete because they float and a satisfactory finish cannot be obtained on the benching.
- Where a B125 cover and frame has been approved, this **must not** be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.

Rev	Date	Drawn	Description	Chk'd
1	28.10.20	NA	Initial Issue	SS



Met Engineers Ltd
Southgate House
Pontefract Road
Stourton, Leeds
West Yorkshire
LS10 1SW

Tel 0113 200 8900
0113 270 1199
e-mail: admin@metengineers.com
www.metengineers.com

Client
Holroyd Homes (Yorkshire) Limited

Project
**Netherton Fold
Netherton, Huddersfield**

Title
Manhole S8 Construction Details

Drawn	NA	Checked	SS	Scale
Date	Oct 2020	Date	Oct 2020	1:20

Status	Planning	Original Size
Drawing No	P19-00650-M2-C-022	A1
Rev	1	