

**NOTE :**  
THE USE OF THIS DETAIL ASSUMES  
1. THE GROUNDWATER TABLE IS BELOW THE BASE OF THE MANHOLE.  
CONTRACTOR TO ADVISE ENGINEER WHERE THE WATER TABLE LEVEL IS HIGHER THAN THE BASE OF MANHOLE

D400 LOCKABLE, NON ROCKING DUCTILE IRON COVER AND FRAME TO IS EN 124 "GULLY TOPS AND MANHOLE TOPS FOR VEHICULAR AND PEDESTRIAN AREAS".  
MINIMUM CLEAR OPENING TO 600mm DIA  
RECESSED COVERS WITH PAVING INLAID TO BE USED IN PAVED AREAS TO MATCH THE SURROUNDING FINISH. PLEASE REFER TO 507.8 SR OF THE SITEWORK SPECIFICATION

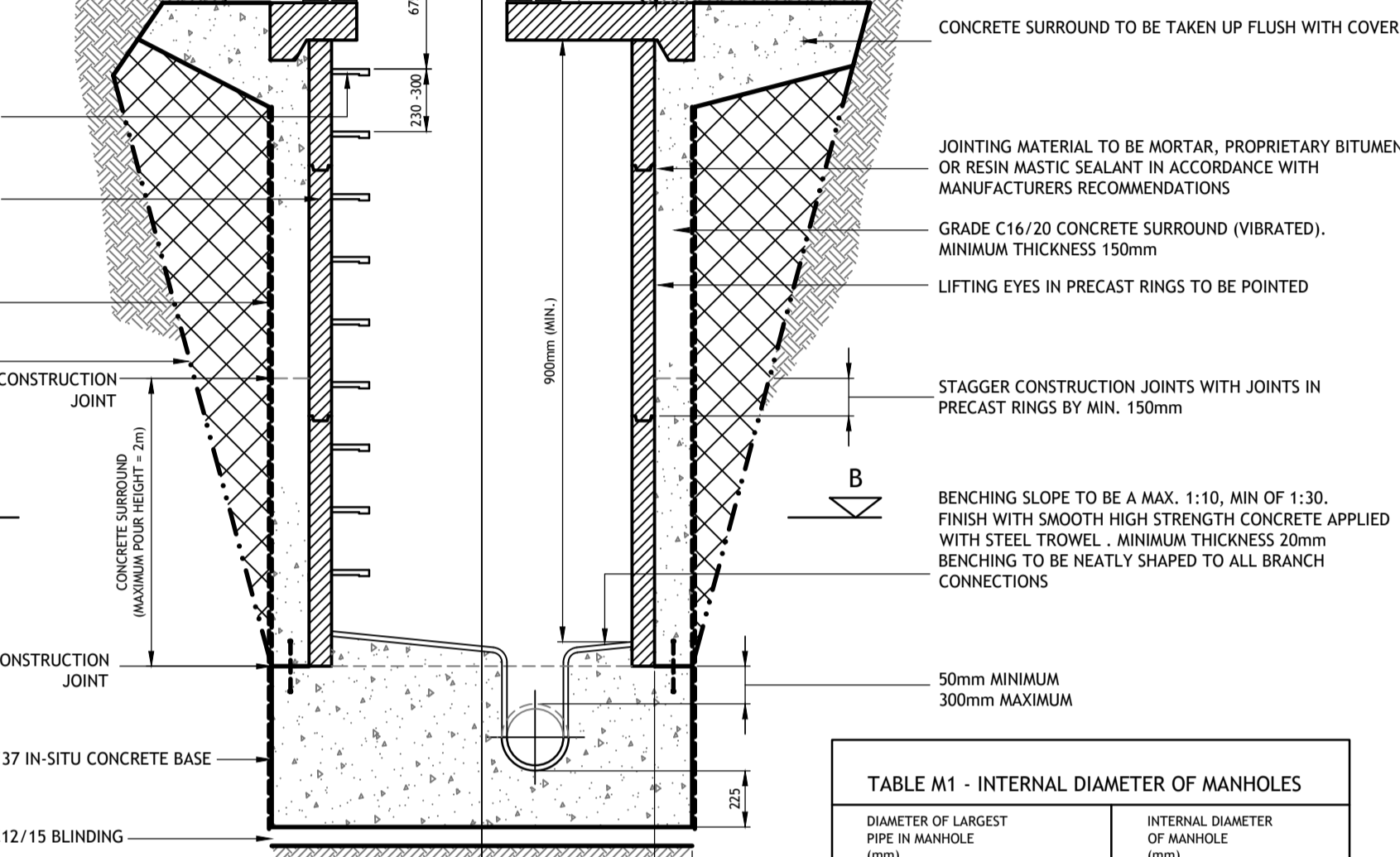
2-4 COURSES OF CLASS B ENGINEERING BRICK TO BS 3921 & IS EN 771/772 "SPECIFICATION FOR CLAY BRICKS"  
BRICKS TO BE LAID IN ENGLISH BOND USING CEMENT/SAND (1:3 MIX) MORTAR WITH 10mm SOLID FILLED BED AND JOINTS FLUSH POINTED.

BRICKWORK AND FRAME HAUNCHED USING CEMENT/SAND (1:3 MIX) MORTAR

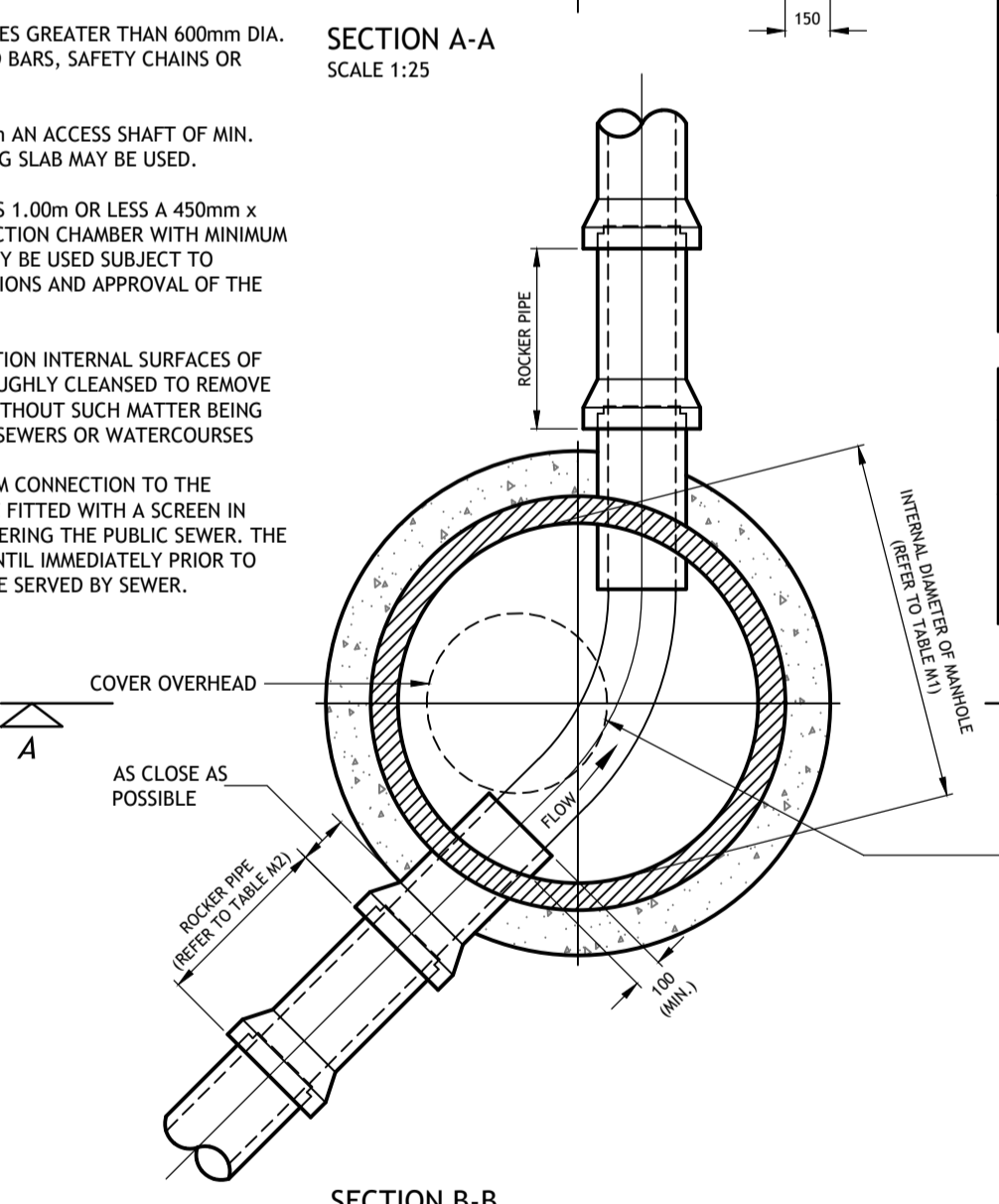
HEAVY DUTY PRECAST CONCRETE COVER TO COMPLY WITH BS EN 1917: 2002 "CONCRETE MANHOLES AND INSPECTION CHAMBERS, UNREINFORCED, STEEL FIBRE AND REINFORCED" AND BS 5911-3:2012 SPECIFICATION FOR UNREINFORCED AND REINFORCED CONCRETE MANHOLES AND SOAKAWAYS

FRAMES TO SET ON CLASS 1 MORTAR WITH ADMIXTURE RONACRETE 'RONAFIX' OR SIMILAR APPROVED

MANHOLE STEP TO IS EN 13101 : 2002  
PRECAST UNITS SHALL COMPLY WITH BS 5911-3:2012 2002 "CONCRETE MANHOLES AND INSPECTION CHAMBERS, UNREINFORCED, STEEL FIBRE AND REINFORCED"  
PROPRIETARY CONCRETE SURROUND FORMWORK TO PROVIDE MINIMUM OF 150mm CLEARANCE ALL ROUND OUTSIDE OF PRECAST RINGS  
RAKE OF EXCAVATION DEPENDENT ON GROUND CONDITIONS. BACK FILL AROUND CONCRETE SURROUND WITH GRANULAR MATERIAL TYPE B TO CLAUSE 808 OF THE HA SPECIFICATION



**NOTE :**  
1. MANHOLES WITH OUTGOING PIPES GREATER THAN 600mm DIA. SHOULD BE FITTED WITH GUARD BARS, SAFETY CHAINS OR OTHER SAFETY DEVICES.  
2. FOR DEPTHS TO INVERT >2.700m AN ACCESS SHAFT OF MIN. 900mm DIAMETER AND REDUCING SLAB MAY BE USED.  
3. WHERE THE DEPTH TO INVERT IS 1.00m OR LESS A 450mm x 450mm (OR 450mm DIA.) INSPECTION CHAMBER WITH MINIMUM COVER SIZES OF 450mm DIA. MAY BE USED SUBJECT TO ACCOMMODATION OF CONNECTIONS AND APPROVAL OF THE LOCAL AUTHORITY.  
4. ON COMPLETION OF CONSTRUCTION INTERNAL SURFACES OF MANHOLE & SEWERS TO THOROUGHLY CLEANSED TO REMOVE ALL DELETERIOUS MATERIAL, WITHOUT SUCH MATTER BEING PASSED FORWARD INTO PUBLIC SEWERS OR WATERCOURSES  
5. FIRST MANHOLE UPSTREAM FROM CONNECTION TO THE (EXISTING) PUBLIC SEWER TO BE FITTED WITH A SCREEN IN ORDER TO PREVENT DEBRIS ENTERING THE PUBLIC SEWER. THE SCREEN NOT TO BE REMOVED UNTIL IMMEDIATELY PRIOR TO OCCUPATION OF PREMISES TO BE SERVED BY SEWER.



**TABLE M1 - INTERNAL DIAMETER OF MANHOLES**

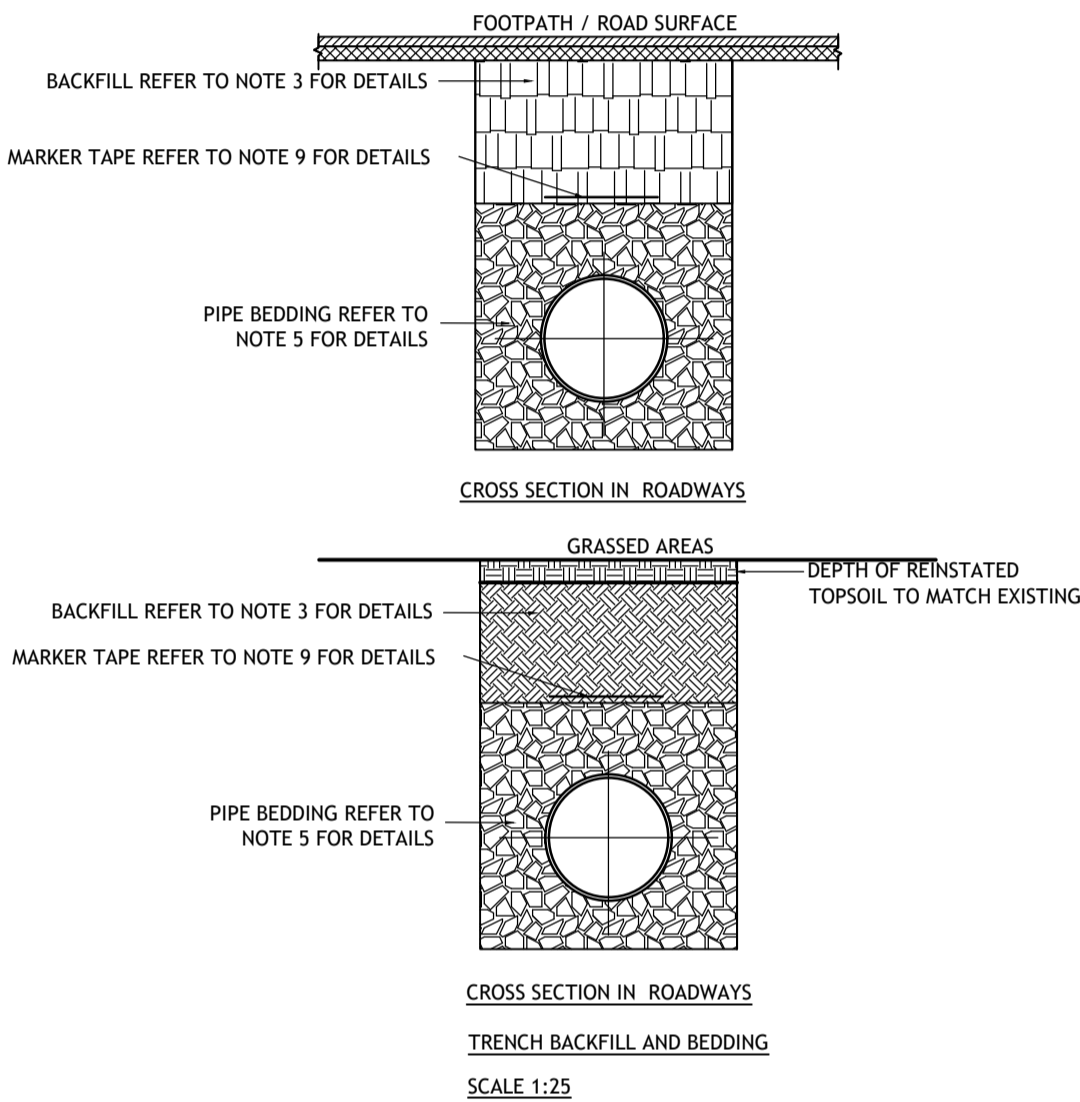
DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)
LESS THAN 375	1200
375 - 450	1350
450 - 700	1500
750 - 900	1800
> 900	CONSULT LOCAL AUTHORITY

**NOTE :**  
USE 1050 DIAMETER RINGS FOR PIPES LESS THAN 375mm DIAMETER WHERE DEPTH TO SOFTTY IS 1.25 - 1.5m

**TABLE M2 - ROCKER PIPE LENGTH**

NOMINAL PIPE DIAMETER (mm)	EFFECTIVE LENGTH (M)
150 to 600	0.6
675 to 750	1.0
Over 750	1.2

**BEDDING DETAILS WATERMAINS**



**NOTES:**  
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE  
2. THE MINIMUM DEPTH OF COVER FROM THE FINISHED GROUND LEVEL TO THE EXTERNAL CROWN OF THE PIPE SHALL BE 750mm FOR SERVICE CONNECTIONS, 900mm FOR WATER MAINS. GREATER DEPTHS OF COVER AND/OR PIPE STRENGTH AND/OR A HIGHER CLASS OF BEDDING MATERIAL MAY BE REQUIRED WHERE HIGH TRAFFIC LOADING IS ANTICIPATED. THE MAXIMUM COVER SHOULD NOT EXCEED 1,200mm WHERE PRACTICABLE.  
3. CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE WATER MAIN IS LOCATED IN ROADS, FOOTPATHS OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1m OF THE PAVED EDGE OF THE ROADWAY. CLAUSE 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS.  
4. SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.  
5. PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGN 4-08-01 GRANULAR MATERIAL SHALL BE 14mm TO 5mm GRADED AGGREGATE OR 10mm SINGLE SIZED AGGREGATE TO IS EN 13242.  
6. IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED OUT AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL, WRAPPED IN GEO-TEXTILE WRAPPING. ALTERNATIVELY, SPECIAL PIPE SUPPORT ARRANGEMENTS, INCLUDING PILING ETC. MAY BE REQUIRED WHERE THE DEPTH OF SOFT MATERIAL IS EXCESSIVE. SUCH ARRANGEMENTS SHALL BE SUBJECT TO ASSESSMENT BY IRISH WATER BEFORE ADVANCING WITH THE WORK.  
7. PIPES SHALL NOT BE SUPPORTED ON STONES OR ROCKS, OR ANY HARD OBJECT AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm BELOW THE ACTUAL DEPTH OF THE TRENCH WITH THE VOID FILLED WITH CLAUSE 804 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.  
8. SHOULD MINIMUM COVER NOT BE ACHIEVABLE, CONCRETE GRADE C8/10 SHALL BE USED AS BACKFILL MATERIAL.  
9. MARKER TAPE TO BE 400mm WIDE BLUE POLYETHYLENE MATERIAL IN ACCORDANCE WITH EN 12163, PLASTIC PIPES SHALL HAVE WARNING TAPE INCORPORATED A REINFORCED BAND BRACING WIRE. SERVICE PIPES SHALL HAVE 200mm WIDE MESH TAPE. MARKER TAPE TO BE LAID AT TOP OF PIPE BEDDING LAYER.  
10. TRENCH WIDTHS FOR PIPE SIZES TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.