NOTES: WHERE THE 1 ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE. DEPTH OF 2 THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTION SHOULD SOFT BE AS FOLLOWS: MATERIAL

A. GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS - DEPTH NOT LESS THAN 0.5M (THIS WOULD IS NORMALLY RELATE TO DRAINS IN PRIVATE PROPERTY, SHALLOW PIPES OF THIS NATURE ARE UNDESIRABLE AND SHOULD BE EXCESSIVE. INSTALLED IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS). SUCH ARRANGEMENTS

DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE SHALL WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.75m. BE C. DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (EG MEWS

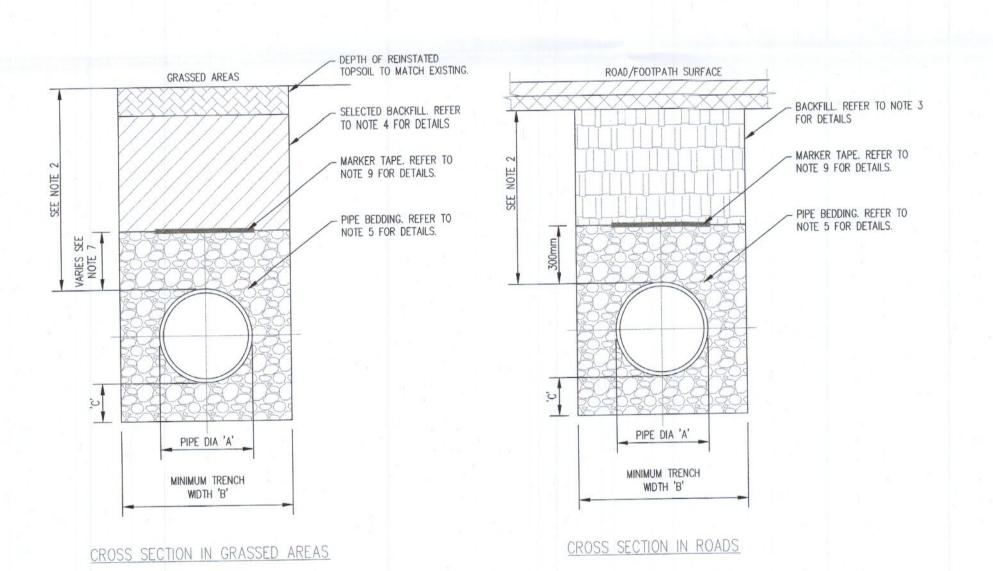
DEVELOPMENTS) WITH LIMITED ACCESS FOR SUBJECT VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.9m. TO ASSESSMENT DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE. BY AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9m. IRISH WATER OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF BEFORE 7.5 TONNES - DEPTH NOT LESS THAN 1.2m. SPECIFICATION FOR ROAD WORKS IS TO BE USED WITH AS BACKFILL MATERIAL WHERE THE

ADVANCING 3 CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SEWER MAIN IS LOCATED IN ROADS, FOOTPATHS OR WHEN THE NEAREST PART OF THE THE TRENCH IS WITHIN 1M OF THE PAVED EDGE OF THE ROADWAY, CLAUSE 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE WORK. NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. 7 IN GREEN FIELD AREAS, TYPE 4 SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT B TO THE APPROVAL OF IRISH WATER. BACKFILL 5 PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGN 4-08-01 GRANULAR MATERIAL SHALL BE 14mm TO 5MM GRADED (SELECTED AGGREGATE OR 10MM SINGLE SIZED AGGREGATE IS EN 13242. CONCRETE BED, HAUNCH & SURROUND, WHERE REQUIRED, SHALL EXCAVATED BE TO STD-WW-08. MATERIAL) WILL BE 6 IN SOFT GROUND CONDITIONS ALLOWED (CBR ABOVE < THE 5) SIDE THE HAUNCH MATERIAL GRANULAR SHOULD MATERIAL BE IN EXCAVATED THE AND CASE DISPOSED OF OF RIGID IN PIPES. ACCORDANCE A WITH GRANULAR THE SURROUND WASTE OF MANAGEMENT A ACT MINIMUM AND DEPTH CLAUSE OF 808 150mm MATERIAL ABOVE IN THE ACCORDANCE CROWN WITH OF THE THE NATIONAL PIPE ROADS IS AUTHORITY REQUIRED SPECIFICATION FOR FOR FLEXIBLE ROAD PIPES, WORKS AND SHALL TYPE REPLACE B THE MATERIAL EXCAVATED MAY MATERIAL, BE WRAPPED USED IN AS GEO-TEXTILE BACKFILL WRAPPING, ABOVE ALTERNATIVELY, THIS. SPECIAL ALL PIPE RISING SUPPORT MAINS ARRANGEMENTS, IN INCLUDING GREENFIELD PILING AREAS ETC. SHALL MAY HAVE BE A REQUIRED MINIMUM COVER OF 300mm OF GRANULAR MATERIAL ABOVE THE EXTERNAL CROWN OF THE PIPE. 8 PIPES SHALL NOT BE SUPPORTED ON STONES, ROCKS OR ANY HARD OBJECTS 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 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL. 9 NON DEGRADABLE MARKER TAPE SHOULD BE INSTALLED AT TOP OF PIPE BEDDING LAYER. IN THE CASE OF NON-METAL PIPE MATERIAL, THE MARKER TAPE SHOULD INCORPORATE A TRACE WIRE WHICH IS LINKED TO FITTINGS AND TERMINATED AT THE WASTE WATER PUMPING STATION AND THE DISCHARGE MANHOLE. 10 TRENCH WIDTHS FOR PIPE SIZES <80mm MAY BE <500mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY

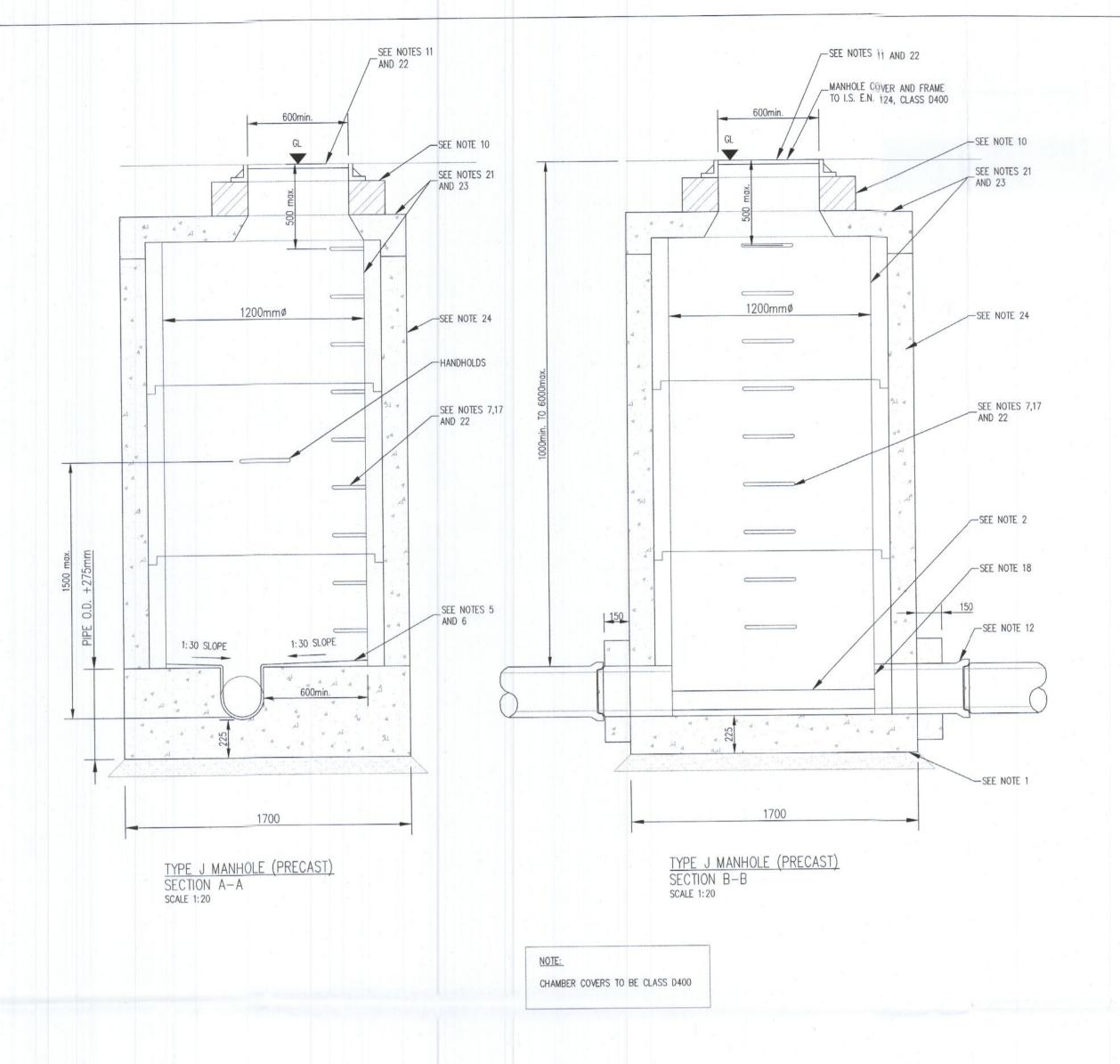
& CONSTRUCTION ACCESS REQUIREMENTS.

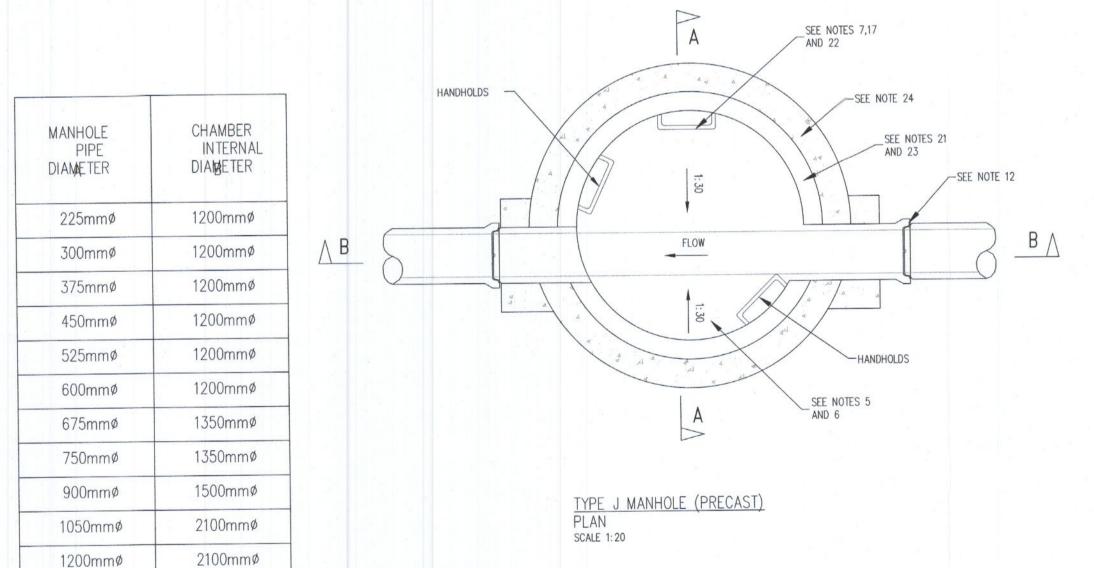
PIPE DIAMETER	DEPTH OF BEDDING					
'A' (mm)	< SEE NOTE 10.					
< 100	100					
150 - 450	200					
600	200					

PIPE DIAMETER 'A' (mm)	TRENCH WIDTH 'B' (mm)		
< 80 RISING MAIN	< SEE NOTE 10.		
100	500		
150	600		
200	600		
250	750		
300	750		
350	750		
400	900		
450	900		
600	1250		



TRENCH BACKFILL AND BEDDING





SURFACE WATER MANHOLES TO SOUTH DUBLIN COUNTY COUNCIL SPECIFICATIONS

NOTES:

- 225mm THICK CL.20N/20mm MASS CONCRETE FOUNDATIONS.
- 2. PREFORMED HALF CIRCLE CHANNEL PIPES. THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE AND THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM THE INNER FACE OF MANHOLE WALL.
- FOR SURFACE WATER MANHOLE HIGH DENSITY BLOCKS TO CI.S10 OF IS.20 PART 1:1987 OR CI.
- 30N/20mm INSITU CONCRETE.
- BLOCK WORK SHALL BE BEDDED AND JOINTED USING MORTAR TO IS406. BEDS AND VERTICAL JOINTS SHALL BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE LAID.
- JOINTS SHALL BE FLUSH POINTED AS THE WORK PROCEEDS BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN WALL BOND.
- 4. RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B AS PER DRAWING. RELIEVING ARCHES USED IN BRICK OR BLOCK WORK MANHOLES EXTEND OVER FULL THICKNESS OF WALL. A DOUBLE ARCH IS TO BE FORMED FOR PIPE DIAMETERS GREATER THAN 600mm.
- BENCHING AND PIPE CHANNEL PIPE SURROUND-CI.20/20 CONCRETE.
- 6. BENCHING FINISHED IN 2:1 SAND-CEMENT MORTAR WITH A SMOOTH TROWEL FINISH, AT 1:13 SLOPE TOWARDS CHANNEL.
- 7. STANDARD RUNGS AT 300 CENTRES VERTICALLY AND GALVANISED TO THE LATEST VERSION OF B.S.729 OR EQUIVALENT. NOTE: STEP IRONS ARE NOT ACCEPTABLE.
- 600mm SQUARE OPE IN ROOF SLAB.
- 9. PRECAST R.C. ROOF SLAB SHALL BE 200mm THICK IN CLASS 30N/20mm, WITH 40mm COVER TO
- 10. 1 TO 2 COURSES OF SOLID ENGINEERING BRICKS CI.B TO I.S.91:1983 SET IN 1:3 (CEMENT AND MORTAR).
- 11. CLASS D400 OR E600 MANHOLE COVER AND FRAME TO IS/EN 124. 150mm DEEP FRAME FOR ROADS AND 100mm DEEP FOR FOOTPATHS AND GREEN AREAS. NON-ROCK DESIGN, CLOSED KEYWAYS, MANUFACTURED FROM SPHEROIDAL GRAPHITE CAST IRON (DUCTILE CAST IRON), 600x600 (600mmø) CLEAR OPENING, COVER AND FRAME COATED IN BITUMEN OR OTHER PAPROVED MATERIAL, COVER TO HAVE A MINIMUM MASS OF 140KG/m2, FRAME BEARING AREA SHALL BE 80,000mm2 MIN., FRAMES SHALL BE DESIGNED TO PREVENT COVERS FALLING INTO MANHOLE. FRAMES SHALL BE BEDDED ON APPROVED MORTAR TO MANUFACTURERS INSTRUCTIONS.
- 12. SHORT LENGTH PIPE AND PIPE JOINT EXTERNAL TO MANHOLE SHALL NOT EXCEED 600mm FROM THE INNER FACE OF MANHOLE WALL.
- 13. TOE HOLES OF 230mm MINIMUM DEPTH AND GALVANISED STEEL SAFETY RAILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN 525mm DIAMETER AND DEPTH TO INVERT >3m FOR ACCESS TO
- 14. A SAFETY CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEED 450mm IN DIAMETER. MILD STEEL SAFETY CHAIN SHALL BE 10mm NOMINAL SIZE GRADE M(H) NON-CALIBRATED CHAIN, TYPE 1, COMPLYING WITH B.S.4942 PART 2 OR EQUIVALENT.
- 15. WHEN DEPTH OF MANHOLES TO INVERT IS GREATER THAN 3.0m LADDERS SHALL BE USED INSTEAD OF RUNGS TO B.S.4211 OR EQUIVALENT EXCEPT THAT STRINGERS SHOULD BE NOT LESS THAN 65x12mm IN SECTION AND RUNGS 25mm IN DIAMETER. FIXED LADDERS SHOULD MEET THE DIMENSIONAL REQUIREMENTS OF B.S.4211 OR EQUIVALENT. 16. LADDER STRINGERS SHOULD BE ADEQUATELY SUPPORTED FROM THE MANHOLE WALL AT INTERVALS OF
- NOT MORE THAN 2.0m, STRINGERS SHOULD BE BOLTED TO CLEATS TO FACILITATE RENEWAL.
- 17. ALL LADDERS, RUNGS, HANDRAILS, SAFETY CHAINS ETC. SHALL BE HOT DIP GALVANISED TO B.S.729 OR EQUIVALENT.
- 18. PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE MANHOLE WALL SO THAT THE CHANNEL EXTENDS THE FULL LENGTH OF THE MANHOLE (EXCEPT FOR PRECAST MANHOLES).
- 19. POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLAB.
- ALL MANHOLES SHALL BE WATER TIGHT TO THE SATISFACTION OF THE ENGINEER. FORMWORK TO REINFORCED CONCRETE AND MASS CONCRETE SHALL COMPLY WITH CLASS 2, SECTION
- FINISH TO THE TOP OF SLABS SHALL COMPLY WITH TYPE A, SECTION 6.2.7, B.S.8110: PART 1:1997.
- PLAN DIMENSIONS OF MANHOLE ARE BASED ON BLOCK WORK HAVING A COORDINATING SIZE OF
- MANHOLES ARE DESIGNED TO B.S.8005 AND WALL THICKNESS TO LS.325 BLOCK WORK DESIGN CODE TAKING GRANULAR FILL PRESSURE AND H.B. SURCHARGE.
- REINFORCEMENT TO SLABS TO ENGINEERS DETAILS
- 20. FOR MANHOLES >3m DEPTH TO INVERT USE 30N/20mm INSITU CONCRETE. REINFORCING MESH REF. A393@ 6.16KG/m TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.
- 21. FOR PRECAST MANHOLES, CHAMBER WALLS AND COVER SLAB TO BE CONSTRUCTED TO IS EN 1917
- 22. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS/ACCESS TO BE POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.
- 23. FOR BEDDING AND SEALING OF CHAMBER RINGS, THE TOP RING (TO PRECAST COVER SLAB AND BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS, JOINTS TO BE SEALED WITH APPROVED PRE-FORMED JOINTING STRIP.
- 24. PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF 150mm THICK GRADE C20 CONCRETE.
- 25. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION.
- 26. DO NOT SCALE FROM THIS DRAWING USE STATED DIMENSIONS ONLY. IF IN DOUBT CONSULT THE
- 27. LEVELS REFER TO O.S. DATUM MALIN HEAD.

GENERAL NOTES

ALL BRICK TO BE SOLID ENGINEERING BRICK CLASS A OR B.

FOR PIPE DIAMETER >750mm USE MANHOLE WITH INTERNAL SIZE=PIPE SIZE + 1mETRE + 300mm.

DISTANCE FROM THE TOP RUNG OF THE LADDER TO GROUND LEVEL MUST BE A MAXIMUM OF 500mm.

PLANNING DRAWING. NOT FOR CONSTRUCTION.

ALL LEVELS GIVEN ARE RELATIVE TO ORDNANCE DATUM. THIS DRAWING HAS BEEN ISSUED FOR INFORMATION PURPOSES ONLY AND MUST NOT BE USED

FOR CONSTRUCTION UNDER ANY CIRCUMSTANCES

For setting out refer to Architect's drawings. This drawing to be read in conjunction with all other Architectural and Engineering

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CS Consulting Group

DUBLIN | LONDON | LIMERICK

Head Office 19-22 Dame Street, Dublin 2. T: +353 (0)1 5480863 e: info@csconsulting.ie

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C031



REFER TO DRAWING "OWE-CSC-ZZ-XX-DR-C-0002" FOR DRAINAGE LAYOUT.