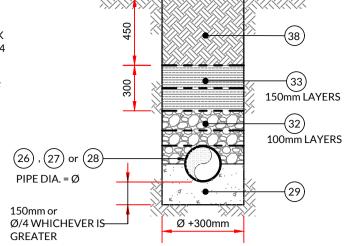


UNDER ROADS/HARDSTANDINGS/FOOTPATHS

COVER > 1.2m

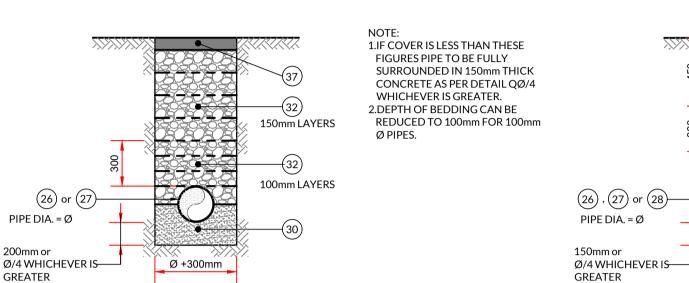
1.IF COVER IS LESS THAN THESE FIGURES PIPE TO BE FULLY SURROUNDED IN 150mm THICK CONCRETE AS PER DETAIL QØ/4 WHICHEVER IS GREATER. 2.APPLIES WHERE EDGE OF TRENCH IS WITHIN 1000mm OF



UNDER LANDSCAPED AREAS

M - DETAIL: CONCRETE BEDDING

SCALE 1:25



UNDER ROADS/HARDSTANDINGS/FOOTPATHS COVER > 1.2m

200mm or

GREATER

UNDER LANDSCAPED AREAS

COVER > 0.9m

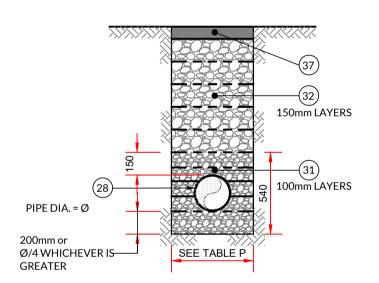
Ø +300mm

150mm LAYERS

100mm LAYERS

N - DETAIL: GRANULAR BEDDING

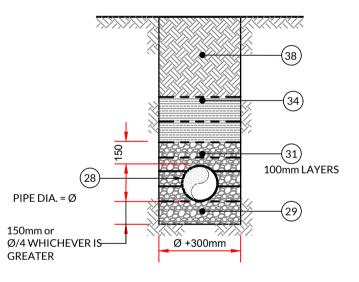
SCALE 1:25



1.IF COVER IS LESS THAN THESE FIGURES PIPE TO BE FULLY SURROUNDED IN 150mm THICK CONCRETE AS PER DETAIL 2.DEPTH OF BEDDING CAN BE REDUCED TO 100mm FOR100mmØ PIPES

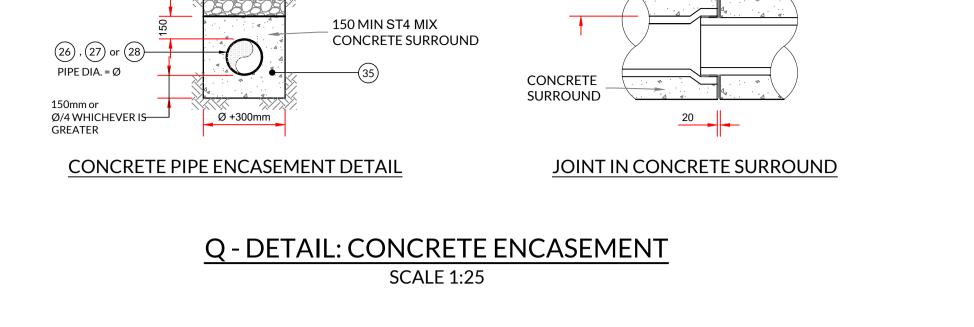
TABLE P PIPE SIZE | WIDTH OF TRENCH (mm) 110 450 600 450 600 200-250 | 600 | 700 700 850 750 900 400 800 950 450 850 1000

UNDER ROADS/HARDSTANDINGS/FOOTPATHS



UNDER LANDSCAPED AREAS

P - DETAIL: UPVC PIPES BEDDING **SCALE 1:25**



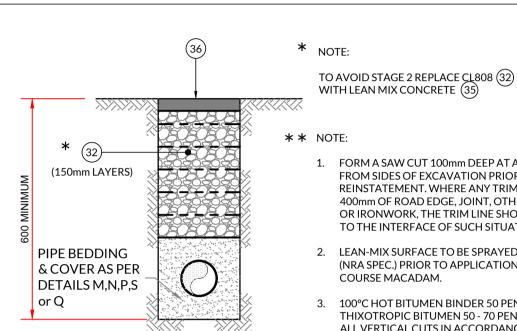
NOTE: PIPE ENCASEMENT WHERE COVER TO

HARDSTANDING / FOOTPATHS & <

0.9m IN GARDENS / GRASSED AREAS

PIPES: < 1.2m IN ROADS/

NOTE: PIPE DIA. = Ø



STAGE 1

LEAVE FOR 6 MONTHS TO CONSOLIDATE

SURFACING/BACKFILL

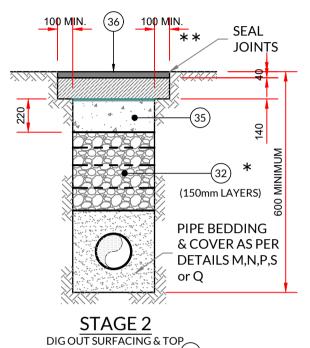
AS APPROPRIATE.

SEE DETAILS M,N & P

1. FORM A SAW CUT 100mm DEEP AT A MIN. OF 100mm FROM SIDES OF EXCAVATION PRIOR TO PERMANENT REINSTATEMENT WHERE ANY TRIM LINES ARE WITHIN 400mm OF ROAD EDGE, JOINT, OTHER REINSTATEMENT OR IRONWORK, THE TRIM LINE SHOULD BE EXTENDED TO THE INTERFACE OF SUCH SITUATIONS. 2. LEAN-MIX SURFACE TO BE SPRAYED AS PER CLAUSE 920 (NRA SPEC.) PRIOR TO APPLICATION OF BINDER

100°C HOT BITUMEN BINDER 50 PEN OR COLD THIXOTROPIC BITUMEN 50 - 70 PEN TO BE APPLIED TO ALL VERTICAL CUTS IN ACCORDANCE WITH IS EN 13108-4 PRIOR TO APPLICATION OF BITUMINOUS

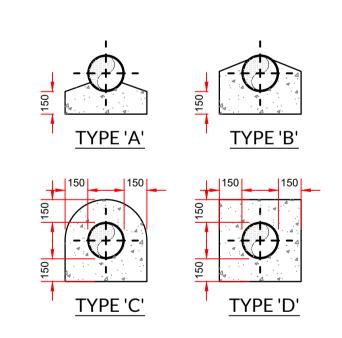
JOINTS SEALED WITH HOT BITUMEN AND TOPPED WITH FINE SAND / GRIT TO GET A MINIMUM 55 SKID RESISTANCE VALUE AS DETERMINED BY THE PORTABLE SKID RESISTANCE PENDULUM USED IN ACCORDANCE WITH ROAD NOTE 27 AND SHALL NOT EXCEED 3mm THICKNESS AND 25mm WIDTH.



220mm OF CL808 MATERIAL (32) & REPLACE WITH NEW WIDER SURFACING ON 220mm LAYER OF LEAN-MIX CONCRETE (36)

R - DETAIL: REINSTATEMENT OF PIPE TRENCH IN EXISTING ROAD

SCALE 1:25



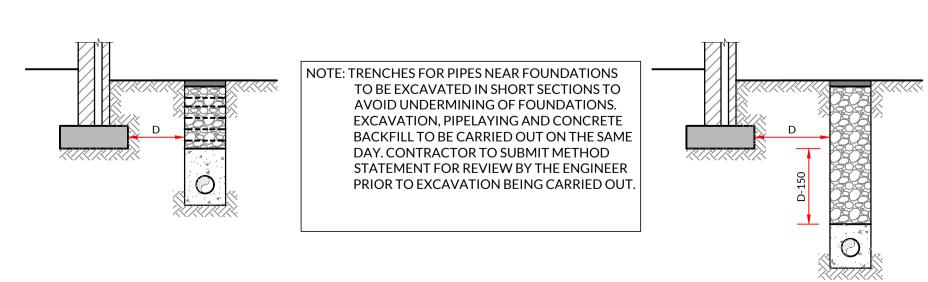
S-DETAIL **SCALE 1:25**

GENERAL NOTES

- 1. IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 804/808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS SHALL REPLACE THE EXCAVATED MATERIAL WRAPPED IN GEO-TEXTUL 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.
- PIPES SHALL NOT BE SUPPORTED ON STONES, ROCKS OR AND 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 NRA SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL.
- NON DEGRADABLE MARKER TAPE SHOULD BE INSTALLED AT TOP OF PIPE BEDDING LAYER. IN CASE OF NON METAL PIPE MATERIAL THE MARKER SHOULD INCORPORATE A TRACE WIRE WHICH IS LINKED TO THE FITTINGS AND AND TERMINATED AT THE PLUMBING STATION AND DISCHARGE MANHOLE.
- 4. TRENCH WIDTHS FOR PIPE SIZES 80mm AND LESS MAY BE <500mm SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, H&S. CONSTRUCTION ACCESS REQUIREMENTS.
- THE HAUNCHES AND SURROUNDS TO BE FORMED USING FORM WORK AND PROVIDE A ROUGH CAST
- 7. POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS
- 8. BITUMINOUS MATERIAL SHALL NOT BE PUT IN CONTACT WITH PE OR PVC PIPES.

6. EXPANSION JOINTS IN THE CONCRETE SHALL BE PROVIDED AT ALL PIPE JOINTS TO ALLOW FOR PIPE FLEXIBILITY. COMPRESSIBLE FILLER BOARD TO BE IN ACCORDANCE WITH BS EN 622-1 AND BS EN 622-4 AND TO BE 18mm THICK.

6076 BEFORE BEING CAST INTO CONCRETE.



WHERE 'D' IS LESS THAN 1m CONCRETE FILL TO LEVEL OF FOUNDATION BOTTOM!

WHERE 'D' IS 1m OR MORE CONCRETE FILL TO WITHIN D-150mm OF LEVEL OF FOUNDATION BOTTOM

T - DETAIL: CONCRETE PIPE LAID NEAR FOUNDATIONS

SCALE 1:50

WHERE FLEXIBLY JOINTED PIPES

SURROUND SHALL HAVE A 20mm

GAP FILLED WITH APPROVED

ARE USED THE CONCRETE

COMPRESSIBLE MATERIAL.

 225mm REINFORCED CONCRETE BASE, GRADE 30/37 2. PERFORMED HALF CIRCLE CHANNEL PIPES, THE PIPELINE MAY, WHERE PRACTICABLE, BE LAID THROUGH THE MANHOLE & THE CROWN CUT OUT TO HALF DIAMETER, PROVIDED FLEXIBLE JOINTS ARE SITUATED ON EACH SIDE NO FURTHER THAN 600mm FROM INNER FACE OF THE MANHOLE WALL.

NOTE: WHERE PIPE DIAMETER CHANGES A MANHOLE, PIPE TO LINE UP

a) BLOCK WORK MANHOLE SOLID BLOCK WORK TO BE OF HIGH STRENGTH (20N/mm²) TO

MAXIMUM DEPTH IS 1.20m (THE USE OF BLOCK WORK IN DEEPER MANHOLES WILL BE CONSIDERED BUT SUCH USE WILL REQUIRE DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW)

WALLS TO BE FLUSH AND NOT PLASTERED INTERNALLY INTERNAL LINING OF ENGINEERING BRICK TO IS EN 771-1 TO A HEIGHT OF 1.0m ABOVE BENCHING. ENGINEERING BRICK TO BE BONDED TO BLOCK WORK USING ENGLISH GARDEN BLOCK WORK SHALL BE EMBEDDED & JOINTED USING

MORTAR TO IS 406. BEDS & VERTICAL JOINTS TO BE COMPLETELY FILLED WITH MORTAR AS THE BLOCKS ARE

b) PRE-CAST CONCRETE MANHOLE: THE UNITS ARE TO COMPLY WITH REQUIREMENTS OF IS EN 1917 AND BS 5911-PART 3.

THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3.0m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE APPROVED PRE-CAST CONCRETE BASES MAY BE USED

INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER REVIEW AND COMPLYING WITH BS 5911- PART

c) IN-SITU CONCRETE MANHOLE:

TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTHS EXCEEDS 3.0m.

4. RELIEVING ARCH FORMED BY 215x103x65 SOLID ENGINEERING BRICK CLASS A OR B . (RELIEVING ARCHES ARE USED IN BRICK OR BLOCK WORK MANHOLES EXTENDED OVER FULL THICKNESS OF WALLS). A DOUBLE ARCH TO BE FORMED FOR PIPE DIAMETER GREATER THAN

5. BENCHING AND PIPE SURROUND - C30/37 CONCRETE. 6. 1:3 CEMENT: SAND MORTAR WITH STEEL TROWEL FINISH AT SLOPE

OF 1:30 TOWARDS THE CHANNEL 7. MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D. CLASS 1. GALVANIZED MILD STEEL STEP RUNGS, 20mm DIAMETER, SHALL BE PROVIDED WITH PLASTIC ENCAPSULATED FINISH. STEP RUNGS ARE TO BE PROVIDED IN MANHOLES WHERE THE DEPTH FROM GROUND TO THE SOFFIT OF THE PIPE IS UP TO 3.0m. FIXED LADDERS ARE REQUIRED IN MANHOLES WHERE THE DEPTH FROM GROUND TO THE SOFFIT OF THE PIPE EXCEEDS A DEPTH OF 3.0m AND UP TO 6.0m, AND SHALL COMPLY WITH IS EN 14396. ALL LADDER RUNGS, HANDRAILS, SAFETY CHAINS ETC. TO COMPLY WITH BS 729 OR EQUIVALENT. 8. 600mm SQUARE OPE IN ROOF.

9. MANHOLE ROOFS SHALL CONSIST OF REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE 30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH BS 5911 PART 4:2002, IN CONJUNCTION WITH IS EN 1979:2002 AND IS

10. 1 TO 3 MAX. COURSES OF CLASS B ENGINEERING BRICKS TO IS 91:1983

SE IN C 50/60 MORTAR. 11. MANHOLE COVER AND FRAME SHALL COMPLY TO IS EN 124 AND BS 7903 (ALL CLASS D400 COVERS SHALL HAVE MIN. FRAME DEPTH 100-150mm). MIN. OPE 600x600mm. COVER TO BE SE IN C 50/60

12. SHORT LENGTH PIPE & PIPE JOINT EXTERNAL TO MAHOLES SHALL NOT EXCEED 600mm FROM THE INNER FACE OF THE MANHOLE WALL. 13. TOE HOLES OF 230mm MINIMUM DEPTH & GALVANIZED SAFETY REILINGS TO BE PROVIDED IN BENCHING OF SEWERS GREATER THAN

525mm Ø & DEPTH TO INVERT> 3.0m FOR ACCESS TO INVERT. 14. STAINLESS STEEL CHAIN IS TO BE PROVIDED ON PIPES THAT EXCEEDED 450mm Ø, COMPLYING WITH BS4942 PART 2 OR EQUIVALENT.

5. PIPE SHOULD BE CUT FLUSH WITH THE INSIDE SURFACE OF THE

MANHOLE WALLS SO THAT CHANNEL EXTENDS THE FULL LENGTH OF

16. POSITION OF 910 SQUARE OPE IN INTERMEDIATE ROOF SLABS: a. ALL MANHOLES SHALL BE WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.

b. FORMWORK TO REINFORCED CONCRETE & MASS CONCRETE SHALL COMPLY WITH CLASS 2 SECTION 6.2.7, BS 8110 Part c. FINISH TO THE TOP OF SLAB SHALL COMPLY WITH TYPE A

FORT PIPE DIAMETER OF > 750mm USE MANHOLE WITH

SECTION 6.2.7, BS 8110 PART 1:1997. d. PLAN DIMENSIONS OF MANHOLES ARE BASED ON BLOCK WORK HAVING A CO-ORDINATING SIZE OF 450x225x100.

INTERNAL DIAMETER SIZE = PIPE SIZE +1.0m +300mm. e. MANHOLES ARE DESIGNED TO BS 8005 & WALL THICKNESS TO IS 325, BLOCK WORK DESIGN CODE TAKING GRANULAR

FILL PRESSURE & H.B. SURCHARGE.

f. REINFORCEMENTS TO SLABS TO ENGINEERS DETAILS.

17. FOR MANHOLES > 3m DEPTH TO INVERT USE C30/37 IN-SITU CONCRETE. REINFORCING MESH REF. A393 TO BE FIXED AT MID POINT OF WALL. ADDITIONAL REINFORCEMENT TO BE SUPPLIED OVER PIPE CROWN.

CONSTRUCTED TO IS EN 1917 & IS 420:2004.

18. PRECAST MANHOLES, CHAMBER WALLS & COVER SL,AB TO BE 19. MANHOLE OPENINGS TO BE SITUATED FURTHEST FROM THE NEAREST CARRIAGEWAY. MANHOLE STEPS-ACCESS TO BE

POSITIONED TO ALLOW VIEWING OF ONCOMING TRAFFIC.

20. FOR BEDDING AND CEILING OF CHAMBER RINGS, THE TOP RING (TO PRECAST OVER SLAB) & BOTTOM RING TO BE BEDDED WITH CEMENT MORTAR. FOR INTERMEDIATE RINGS. JOINTS TO BE SEALED WITH

APPROVED PREFORMED JOINTING STRAP 21. PRECAST MANHOLES TO BE SURROUNDED WITH A MINIMUM OF

150mm THICK GRADE C16/20 CONCRETE. 22. 225mm GRADE C 25/30 CONCRETE SURROUND.

23. 75mm GRADE C 12/15 BLINDING CONCRETE.

24. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER AND FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS, NEW ROAD CONSTRUCTION AND SURFACE FINISH TO BE ROAD AUTHORITY'S REQUIREMENTS. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINE FOR MANAGING OPENINGS IN PUBLLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

25. PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH EN 1917:2004. 26. CONCRETE SEWER PIPES WITH SPIGOT & SOCKET JOINTS & RUBBER FITTINGS TO COMPLY WITH IS EN 1916 & IS 6:2004 OR EQUIVALENT

STANDARD CLASS OR CLASS H 27. VITRIFIED CLAY PIPES AND FITTINGS COMPLYING WITH THE REQUIREMENTS OF IS EN 295-1/2/3: 1992 OR EQUIVALENT STANDARD CLASS 160 OR CLASS 200.

28. UNPLASTICIZED POLYVINYL CHLORIDE (UPVC) PIPES & FITTINGS IN ACCORDANCE WITH THE REQUIREMENTS OF IS 424. 29. CONCRETE BED & SURROUND MUST BE A MINIMUM 150mm THICK

IN-SITU CONCRETE C16/20 & HAUNCHED HALFWAY UP THE BARREL 30. GRANULAR BED AND SURROUND OF RIGID PIPES TO BE EITHER:

a) 14mm TO 5mm GRADED AGGREGATE OR

b) 10mm SINGLE SIZE AGGREGATE

31. GRANULAR BED, SURROUND & COVER FOR UPVC TO BE a) 14mm TO 5mm GRADED AGGREGATE 315mm + PIPE DIAMETER

ALL COMPLYING WITH THE REQUIREMENTS OF IS EN 12620:2002 & SHOULD HAVE A COMPACTION FACTOR VALUE OF NOT GREATER THAN 0.2 WHEN MEASURED IN ACCORDANCE WITH BS EN 752:2017. GRANULAR SIDE FILL & COVER TO BE PLACED UNIFORMLY ON EITHER SIDE OF THE PIPE IN LAYERS NOT EXCEEDING 100mm EACH LAYER BEING COMPACTED

32. GRANULAR BACKFILL MATERIAL SHALL BE IN COMPLIANCE WITH CLAUSE 804 (GRANULAR MATERIAL TYPE B) OF THE NRA SPECIFICATION FOR ROAD WORKS. GRANULAR FILL SHOULD BE PLACED ON EITHER SIDE OF THE FILL IN UNIFORM LAYERS NOT EXCEEDING 100mm, FACH LAYER BEING COMPACTED BY HAND & UNDERGOING TAMPING UNTIL IT HAS A MINIMUM LAYER OF 300mm COMPACTED OVER. CARE SHOULD BE TAKEN SO THAT THE TAMPING DOES NOT DISPLACE THE PIPE FROM ITS CORRECT LINE AND LEVEL. SUBSEQUENT LAYER OF GRANULAR MATERIAL TO BE COMPACTED IN 150mm THICK LAYERS TO THE LOCAL AUTHORITY ROAD DIVISION SPECIFICATION. MECHANICAL COMPACTING EQUIPMENT SHOULD NOT BE USED UNTIL THERE IS A MINIMUM 450mm THICK COMPACTED

COVER OVER THE CROWN OF THE PIPE 33. SELECTED FILL SHOULD BE FREE FROM STONES LARGER THAN 37mm. LUMPS OF CLAY OVER 75mm, TIMBER, FROZEN MATERIAL & VEGETABLE OR FOREIGN MATTER. SELECTED FILL ON EITHER SIDE OF THE PIPE SHOULD BE LAID IN 100mm THICK LAYERS. EACH LAYER BEING COMPACTED BY HAND & UNDERGOING TAMPING UNTIL IT HAS A MINIMUM LAYER OF 450mm COMPACTED OVER. CARE SHOULD BE TAKEN SO THAT THE TAMPING DOES NOT DISPLACE THE PIPE FROM

ITS CORRECT LINE AND LEVEL & COMPACTED IN 150mm LAYERS. 34. GENERAL BACKFILL MATERIAL SUITABLE FOR BACKFILL ABOVE SELECTED FILL MATERIAL SHOULD BE FREE FROM BOULDERS, LUMPS OF CONCRETE. TIMBER & VEGETABLE OR FOREIGN / CONTAMINATED MATTER. GENERAL BACK FILL SHOULD BE PLACED IN LAYERS NOT EXCEEDING 300mm. EACH LAYER BEING WELL COMPACTED. MECHANICAL COMPACTION EQUIPMENT SHOULD NOT BE USED UNTIL THERE IS MINIMUM OF 450mm COMPACTED COVER OVER THE

CROWN OF THE PIPE. 35. PIPES WITH INADEQUATE COVE TO BE SURROUNDED IN 150mm THICK C 16/20 CONCRETE.

36. Lean Mix Backfill in Existing Roads. Where required by the LOCAL AUTHORITY TO BE GRADE 20N/20mm CONCRETE.

APPROPRIATE, THE LOCAL AUTHORITY REQUIREMENTS. 38. GOOD QUALITY TOPSOIL 450mm MINIMUM THICKNESS, TO BE PLACE OVER BACKFILL IN ACCORDANCE WITH PARKS

37. PAVING TO BE IN ACCORDANCE WITH THE ROAD SPECIFICATION & IF

39. AJ's (ARMSTRONG JUNCTIONS)

DEPARTMENTS/LANDSCAPE ARCHITECTS.

a) TO BE USED FOR PIPE DEPTHS UP TO 600mm

b) INTERNAL AJ's IF REQUIRED TO HAVE DOUBLE SEALED COVERS c) EXTERNAL AJ's TYPICALLY TO BE PROPRIETARY UPVC WITH 35kN

d) EXTERNAL AJ'S IN AREAS SUBJECT TO TRAFFIC TO BE SURROUNDED IN 150mm C20 CONCRETE & TO HAVE CLASS D COVER AND FRAME SUPPORTED OF THE CONCRETE SURROUND.

FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING.

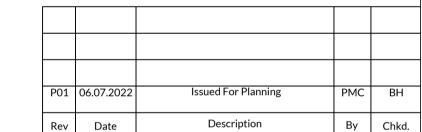
ALL DRAWINGS TO BE CHECKED BY THE

CONTRACTOR ON SITE ENGINEER/EMPLOYERS REPRESENTATIVE, AS APPROPRIATE, TO BE INFORMED BY THE **CONTRACTOR OF ANY DISCREPANCIES**

BEFORE ANY WORK COMMENCES THE CONTRACTOR SHALL UNDERTAKE A THOROUGH CHECK FOR THE ACTUAL LOCATION OF ALL SERVICES/UTILITIES, ABOVE AND BELOW GROUND, BEFORE ANY

WORK COMMENCES ALL LEVELS SHOWN RELATE TO ORDNANCE SURVEY DATUM AT MALIN HEAD

PIPE BEDDING FOR FOUL SEWER TO BE IN ACCORDANCE WITH IRISH WATER STANDARD DETAILS AND CODE OF PRACTICE - IRISH WATER DETAILS & REQUIREMENTS WILL TAKE PRECEDENCE



Lock House Development Ltd.

Strategic Housing Development at Bothar an Choiste, Castlegar,

Title:

Standard Pipe Bedding Details

Galway.

As Shown Scale @ A1: Prepared by: Checked: Date: **PMC** July 2022 BH Project Director: Brian Carroll Drawing Status: Planning

CONSULTING ENGINEERS

Fairgreen House, Fairgreen Road, Galway,

Tel: +353 (0)91 565 211

H91 AXK8.

Ireland.

b) 10mm SINGLE SIZE AGGREGATE PIPE DIAMETER < 315mm BY HAND TAMPING UNTIL THE PIPE HAS A MINIMUM COMPACTED COVER