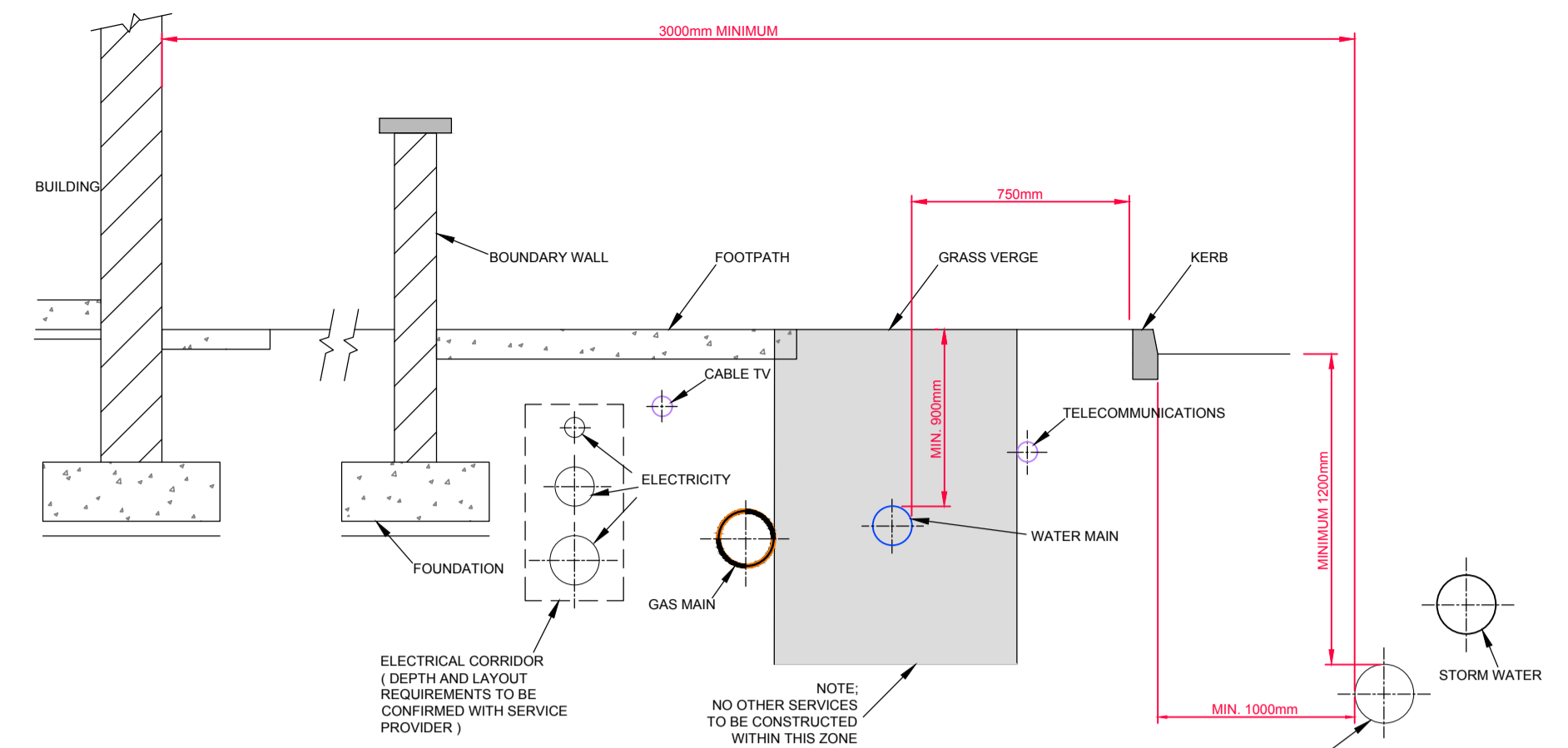


1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. AS FAR AS PRACTICABLE, JUNCTIONS AND SERVICE CONNECTIONS SHALL BE BUILT IN FOR ALL PLANNED USERS WHEN THE SEWER IS BEING CONSTRUCTED. WHERE IT IS NECESSARY TO MAKE A POST-CONSTRUCTION CONNECTION THE MAIN CONTRACTOR SHALL BRING THE SEWER TO THE INSPECTION CHAMBER, INSTALL THE INSPECTION CHAMBER AND SEAL THE UPSTREAM END UNTIL THE CONNECTION IS REQUIRED.
3. THE VERTICAL ANGLE BETWEEN THE SERVICE CONNECTING PIPE AND THE HORIZONTAL SHALL BE GREATER THAN 0° AND NOT MORE THAN 60°.
4. WHERE THE CONNECTION IS BEING MADE TO A SEWER WITH A NOMINAL INTERNAL DIAMETER OF 300mm DIAMETER OR LESS, CONNECTIONS SHALL BE MADE USING 45° ANGLE JUNCTIONS.
5. WHERE THE CONNECTION IS BEING MADE TO A SEWER WITH A NOMINAL INTERNAL DIAMETER GREATER THAN 300mm :
 - A) IF THE DIAMETER OF THE CONNECTING PIPE IS GREATER THAN HALF THE DIAMETER OF THE SEWER, AN ACCESS MANHOLE SHALL BE CONSTRUCTED TO FORM THE CONNECTION POINT; OR,
 - B) IF THE DIAMETER OF THE CONNECTING PIPE IS LESS THAN OR EQUAL TO HALF THE DIAMETER OF THE SEWER, THEN THE CONNECTION SHALL BE MADE USING A PREFORMED SADDLE FITTING WITH A SLOW BEND BETWEEN THE SADDLE AND THE CONNECTING SEWER/DRAIN .
6. CONNECTIONS MADE WITH SADDLE FITTINGS SHALL BE MADE BY CUTTING AND SAFELY REMOVING A CORE FROM THE PIPE AND JOINTING THE SADDLE FITTING TO THE PIPE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS TO ENSURE A WATERTIGHT JOINT. THE CONNECTING PIPE SHALL NOT PROTRUDE INTO THE SEWERS.

**IRISH WATER - STANDARD DETAILS - WASTEWATER
TYPICAL SEWER/SERVICE PIPE CONNECTION - STD-WW-04**

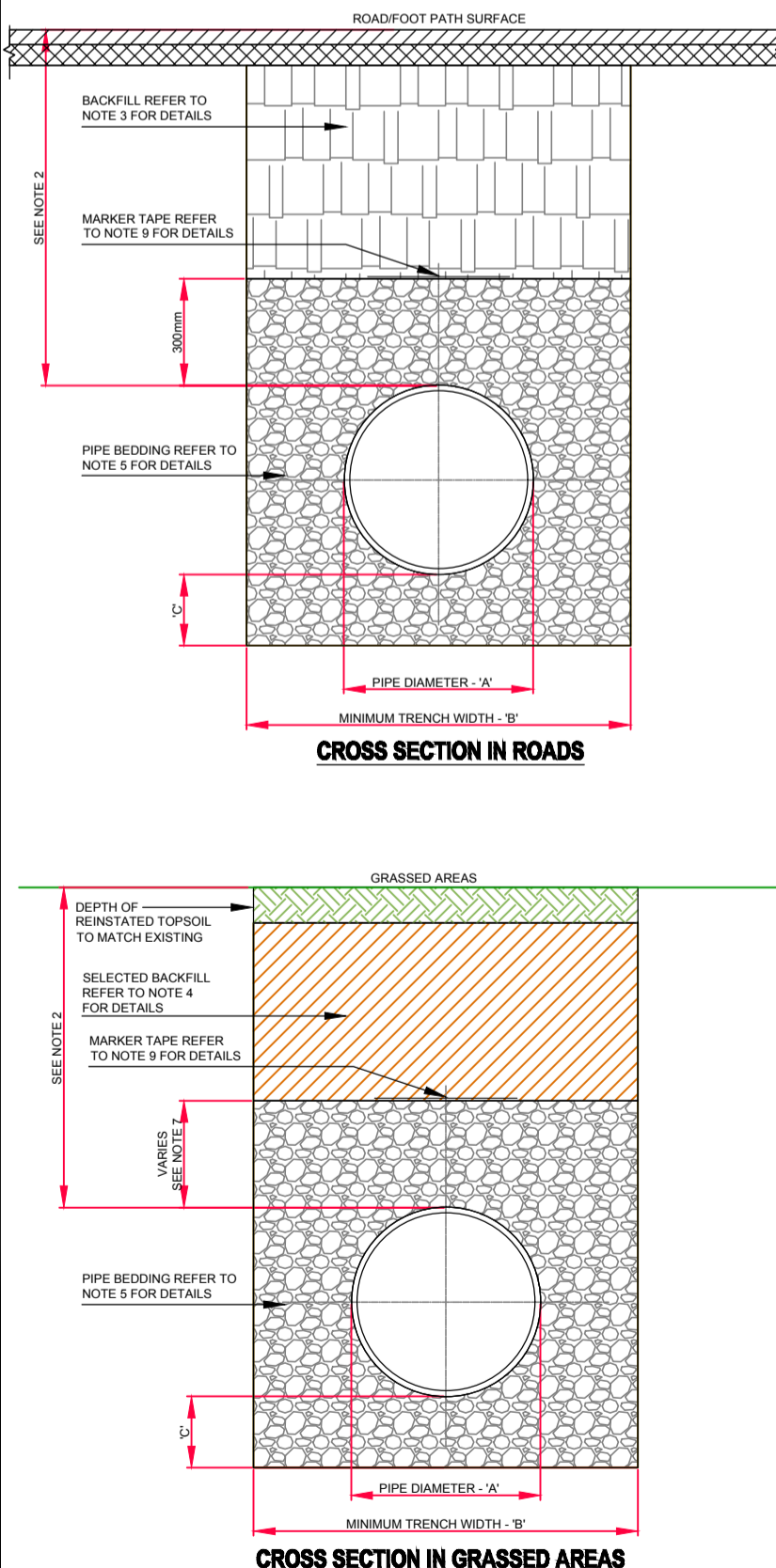
NOT TO SCALE



1. THE SEPARATION DISTANCES OUTLINED ARE MINIMUM REQUIREMENTS.
2. SPECIFIC SEPARATION CLEARANCE DISTANCES IN EXCESS OF THESE MINIMA SHALL BE PROVIDED FOR SERVICES SUCH AS GAS, ELECTRICITY, FIBRE-OPTIC OR OIL FILLED CABLES AS THE CASE MAY BE. THE PARTICULAR UTILITY PROVIDERS SHALL BE CONSULTED TO DETERMINE THESE MINIMUM SEPARATION DISTANCES AND EVIDENCE OF THIS CONSULTATION, WITH THE SPECIFIED SEPARATION DISTANCES, SHALL BE PROVIDED TO IRISH WATER AT DESIGN STAGE.
3. NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN THE FOLLOWING DISTANCES FROM AN EXISTING WATER MAIN OR WASTEWATER RISING MAIN:
 - HORIZONTAL
 - 1m AT EITHER SIDE OF AN EXISTING MAIN LESS THAN 200mm IN DIAMETER.
 - 2m AT EITHER SIDE OF AN EXISTING MAIN OF 200mm TO 350mm IN DIAMETER.
 - 5m AT EITHER SIDE OF AN EXISTING MAIN OF 350mm OR GREATER IN DIAMETER.
 WHERE DUCTS OR PIPES ARE TO BE LAID CLOSE TO AN EXISTING WATERMAIN OR SEWER IN THE OWNERSHIP OF IRISH WATER. NOTIFICATION IN WRITING SHALL BE PROVIDED A MINIMUM OF 10 DAYS AHEAD OF ADVANCEMENT OF THE WORK. NOTIFICATION IN WRITING IS REQUIRED SHOULD WORKS BE WITHIN 1.5m DISTANCE OF A WASTEWATER SEWER. REQUIREMENTS SHALL ALSO APPLY TO TRENCHES TO LOCATE THE MAIN OR GAIN GROUND INFO DATA. LARGER DIAMETERS >350mm DISTRIBUTION AND TRUNK MAINS, IRISH WATER MUST BE NOTIFIED AT LEAST 1 MONTH IN ADVANCE. MAIN CONTRACTORS SHALL ALSO COMPLY WITH ANY NOTIFICATION REQUIREMENTS OF OTHER UTILITY PROVIDERS (E.G. GAS MAIN, TELECOMMUNICATION ETC.
4. DETAILED PROPOSALS, INCLUDING WORK METHOD STATEMENTS, INSURANCE CONFIRMATION AND DETAILS OF WORK COMPLETED OF A SIMILAR NATURE MUST BE SUBMITTED TO IRISH WATER FOR ITS CONSIDERATION BEFORE APPROVAL WILL ISSUE. ALL SUCH WORKS IN THE VICINITY OF ARTERIAL WATER MAINS AND SEWERS (MAINS GREATER THAN 400mm) SHALL BE SUBJECT TO WRITTEN AGREEMENT WITH IRISH WATER BEFORE CONSTRUCTION COMMENCES ON SITE. THIS AGREEMENT SHALL ALSO INCLUDE ANY NECESSARY PROTECTION FOR WATER MAINS.
5. ANY DAMAGE SHALL BE NOTIFIED IMMEDIATELY TO IRISH WATER. THE PERSON WHO CAUSES THE DAMAGE TO A SEWER MAIN OR FITTING WILL BE DEEMED TO HAVE COMMITTED AN OFFENCE UNDER SECTION 45 OF THE WATER SERVICES ACT 2007.
6. EXISTING OR PROPOSED, OR IN CLOSE PROXIMITY TO ANY EXISTING STRUCTURES OR FEATURES THAT WILL INHIBIT ACCESS FOR POST INSTALLATION MAINTENANCE AND ACCESS.
7. THE MINIMUM CLEAR DISTANCE WILL BE INCREASED IF THE SEWER IS GREATER THAN 3m DEEP OR IF THE DIAMETER IS GREATER THAN 375mm. THE MINIMUM CLEAR DISTANCE IN THESE SITUATIONS SHALL BE > DEPTH TO INVERT OR 10 TIMES THE SEWER DIAMETER, WHICH EVER IS GREATER.
8. THE EXTERNAL FACES OF MANHOLE SHALL BE AT LEAST 0.5m FROM KERB LINE.
9. WHERE DESIGN DEVIATES FROM TYPICAL DETAILS, THE LAYOUT IS SUBJECT TO APPROVAL OF IRISH WATER.

**IRISH WATER - STANDARD DETAILS - WASTEWATER
TYPICAL SERVICE LAYOUT INDICATING SEPARATION DISTANCES - STD-WW-05**

NOT TO SCALE



- ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
1. THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTION SHOULD BE AS FOLLOWS: GARDENS AND PATHWAYS WITHOUT ANY POSSIBILITY OF VEHICULAR ACCESS - DEPTH NOT LESS THAN 0.5 M. (THIS WOULD NORMALLY RELATE TO DRAINS IN PRIVATE PROPERTY. SHALLOW PIPES OF THIS NATURE ARE UNDESIRABLE AND SHOULD BE INSTALLED IN ACCORDANCE WITH THE CURRENT BUILDING REGULATIONS).
 2. DRIVEWAYS, PARKING AREAS AND YARDS WITH HEIGHT RESTRICTIONS TO PREVENT ENTRY BY VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.75 M.
 3. DRIVEWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. MEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.9 M.
 4. DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE.
 5. AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9 M.
 6. OTHER HIGHWAYS AND PARKING AREAS WITH UNRESTRICTED ACCESS TO VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 1.2m.
 7. CLAUSE 808 MATERIAL IN ACCORDANCE WITH THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE SEWER 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.
 8. SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.
 9. 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 IS EN 13242. CONCRETE BED, HAUNCH & SURROUND, WHERE REQUIRED, SHALL BE TO STD-WW-08.
 10. IN SOFT GROUND CONDITIONS (CBR < 5) THE MATERIAL SHOULD BE EXCAVATED 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.

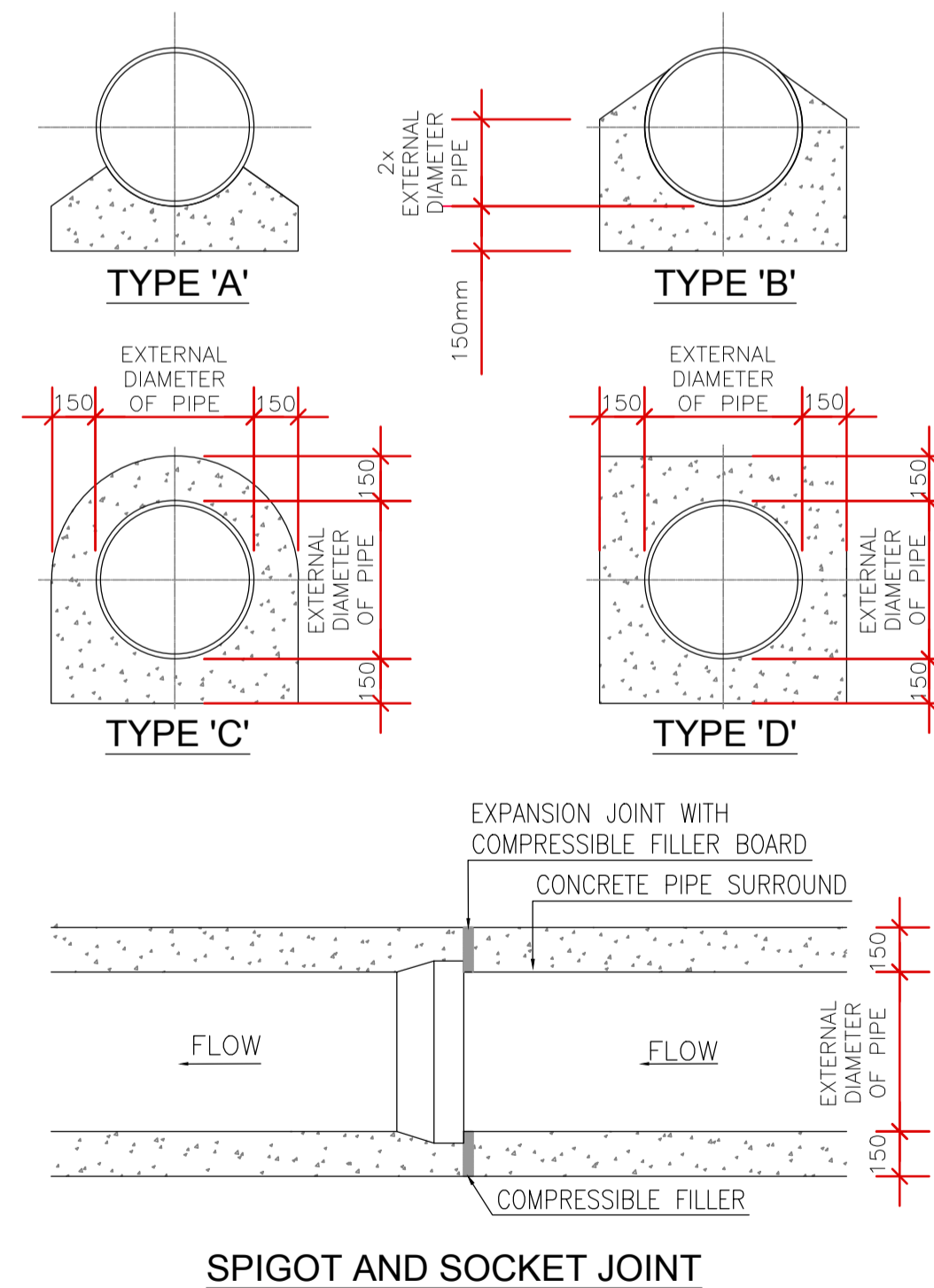
7. IN GREEN FIELD AREAS, TYPE B BACKFILL (SELECTED EXCAVATED MATERIAL) WILL BE ALLOWED ABOVE THE SIDE HAUNCH GRANULAR MATERIAL IN THE CASE OF RIGID PIPES. A GRANULAR SURROUND OF A MINIMUM DEPTH OF 150mm ABOVE THE CROWN OF THE PIPE IS REQUIRED FOR FLEXIBLE PIPES, AND TYPE B MATERIAL MAY BE USED AS BACKFILL ABOVE THIS. ALL RISING MAINS IN GREENFIELD AREAS SHALL HAVE A 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 'A' (mm) | TRENCH WIDTH 'B' (mm) |
|------------------------|-----------------------|
| 4-80 RISING MAIN | SEE NOTE 10 |
| 100 | 500 |
| 150 | 600 |
| 200 | 600 |
| 250 | 700 |
| 300 | 700 |
| 350 | 750 |
| 400 | 900 |
| 450 | 900 |

| PIPE DIAMETER 'A' (mm) | DEPTH OF BEDDING 'C' (mm) |
|------------------------|---------------------------|
| 400 | 100 |
| 150-400 | 200 |

**IRISH WATER - STANDARD DETAILS - WASTEWATER
TRENCH BACKFILL AND BEDDING - STD-WW-07**

NOT TO SCALE



**IRISH WATER - STANDARD DETAILS - WASTEWATER
CONCRETE BED, HAUNCH AND SURROUND TO WASTEWATER PIPES - STD-WW-08**

NOT TO SCALE



| Issue register | | | | | |
|----------------|----------|----------------|-------|---------|----------|
| Rev. | Date | Description | Drawn | Checked | Approved |
| PL1 | 08.02.19 | PLANNING ISSUE | PF | PF | NP |
| PL2 | 23.02.19 | PLANNING ISSUE | PF | PF | NP |
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Client: **KILKENNY COUNTY COUNCIL**

Job Description: **CROKERS HILL HOUSING DEVELOPMENT**

Status: **PLANNING ISSUE**

Drawing Title: **EXTERNAL DETAILS SHEET 6**

I.W. STANDARD WASTEWATER DETAILS

Project No: **18KK003** Drawing Ref: **C-055** Rev: **PL2**

Date: **07.02.18** Scale: **AS SHOWN**

Drawn By: **P.FUNCHEON** Checked By: **P.FUNCHEON** Approved By: **N.PATTERSON**

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