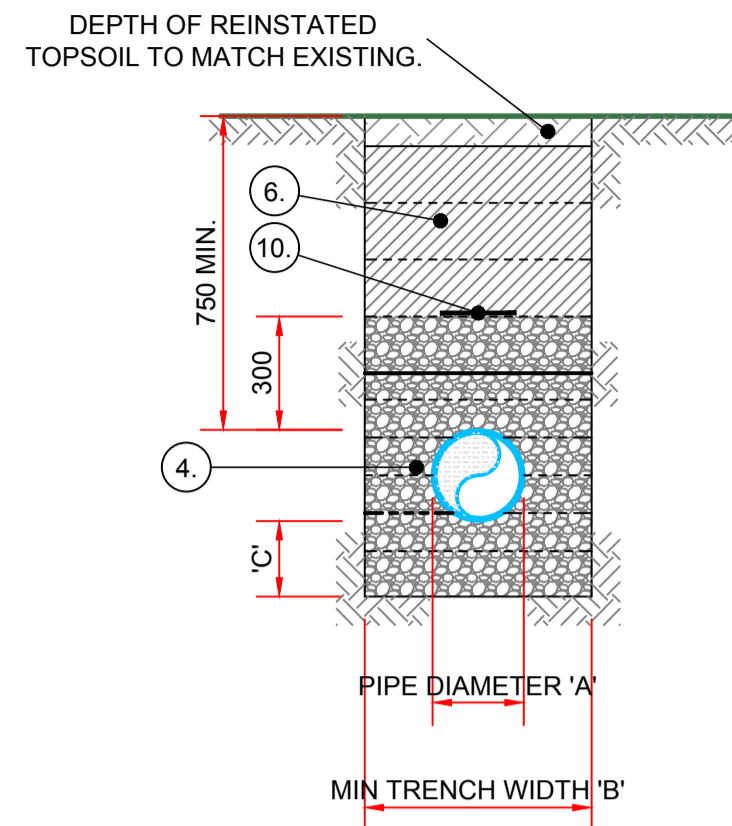


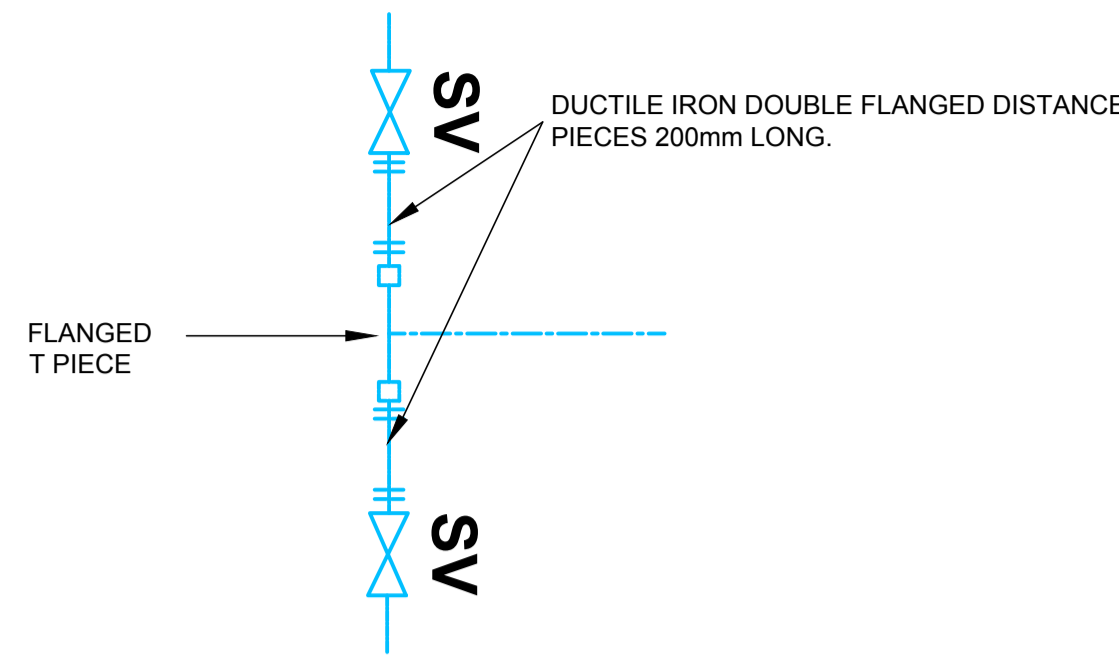
| PIPE SIZE 'A' (mm) | WIDTH OF TRENCH 'B' (mm) |
|--------------------|--------------------------|
| < 80 | SEE NOTE 11. |
| 100 | 500 |
| 150 | 600 |
| 200 | 600 |
| 250 | 750 |
| 300 | 750 |
| 350 | 750 |
| 400 | 900 |
| 450 | 900 |

| PIPE SIZE 'A' (mm) | DEPTH OF BEDDING 'C' (mm) |
|--------------------|---------------------------|
| < 200 | 150 |
| > 500 | 200 |

UNDER ROADS / HARDSTANDINGS / FOOTPATHS
SCALE A1 - 1:20
SCALE A3 - 1:40

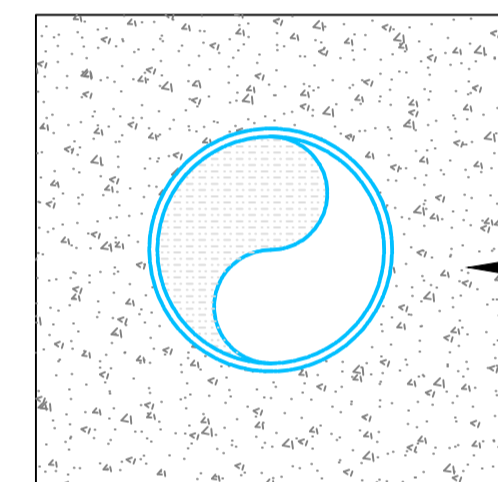


UNDER LANDSCAPED AREAS
SCALE A1 - 1:20
SCALE A3 - 1:40

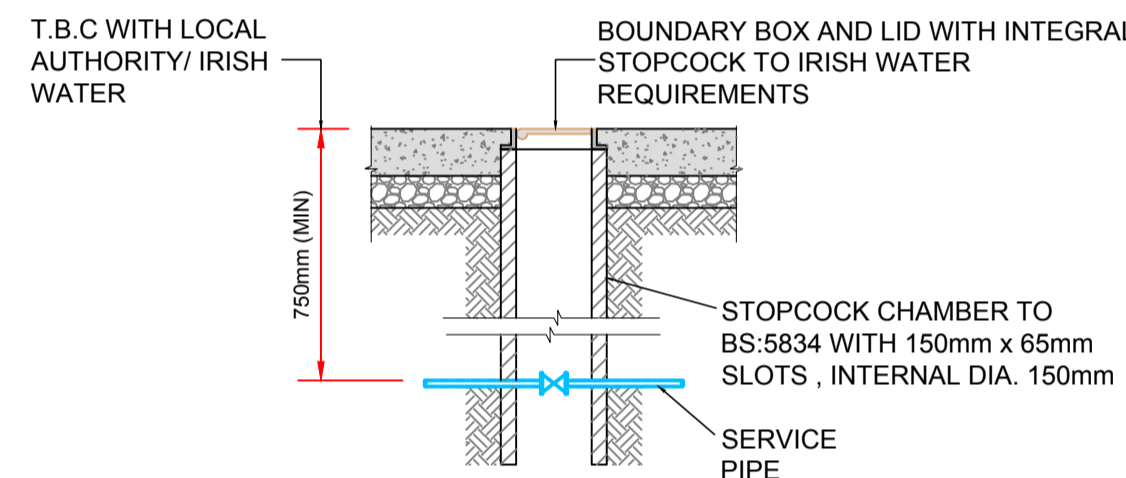


SCHEMATIC OF PROPOSED MAIN CONNECTION TO EXISTING WATERMAIN

N.T.S.



150MM MIN GRADE ST3 CONCRETE SURROUND IN LIEU OF GRANULAR BEDDING. ON HDPE MAINS WRAP THE MAIN IN TWO LAYERS OF HEAVY DUTY POLYETHYLENE PRIOR TO POURING THE CONCRETE ENCASEMENT.

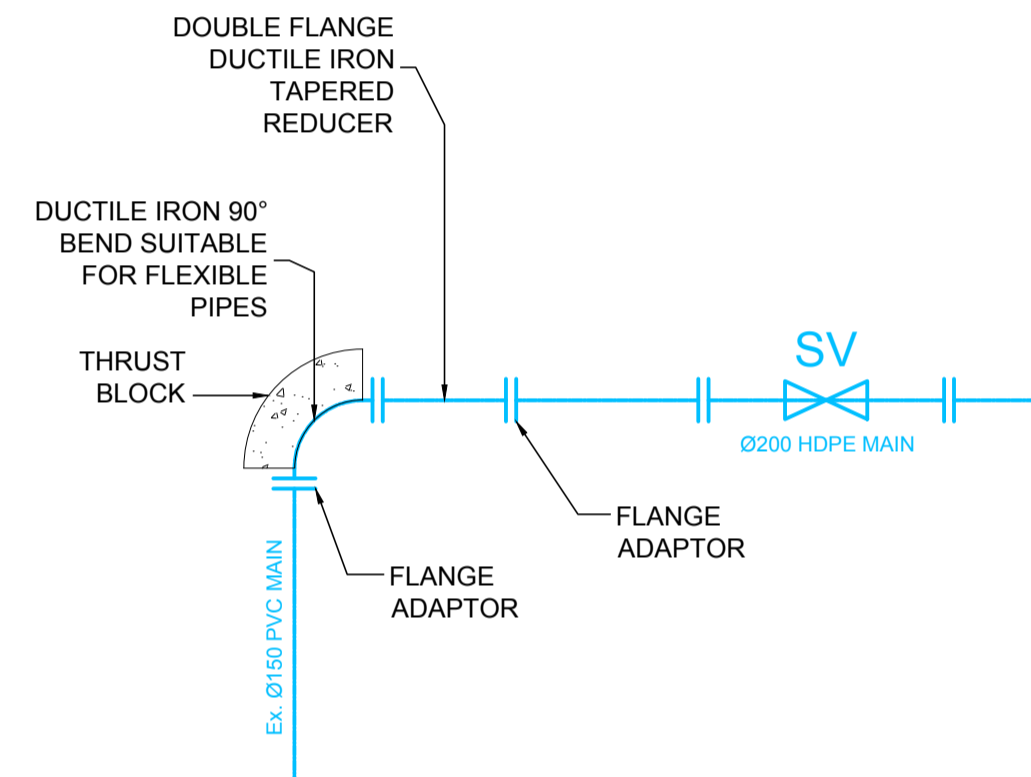


SECTION NOT TO SCALE

BOUNDARY BOX

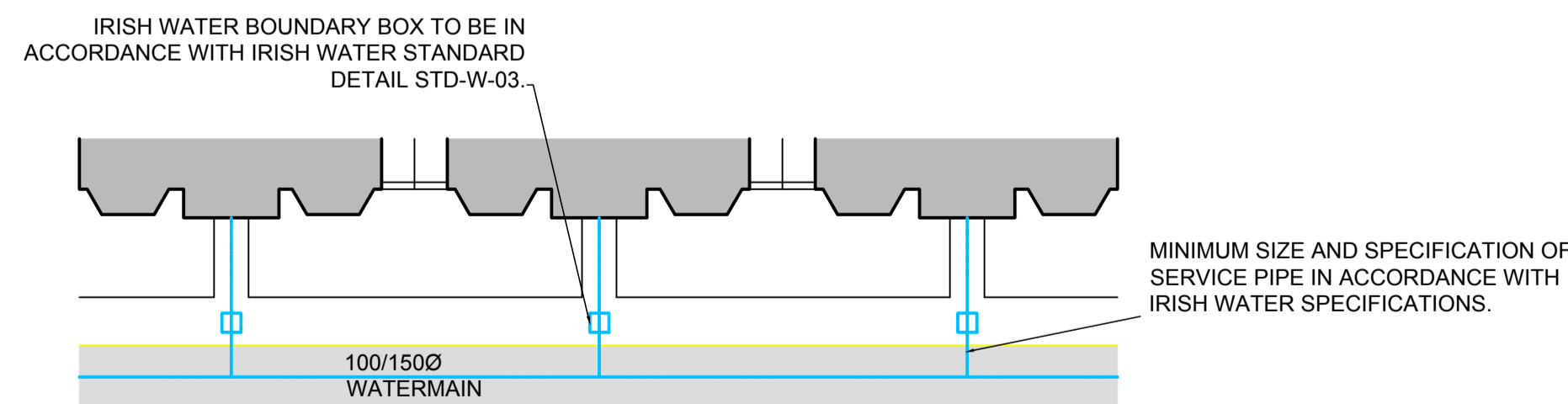
CONCRETE ENCASEMENT DETAIL WHERE MIN. COVER NOT PROVIDED

SCALE 1:10
SCALE 1:20
PROVIDED WHERE COVER TO PIPES: < 1.2m IN ROADS OR PIPES UNDER BUILDINGS: < 0.9m IN GARDENS/GRASSED AREAS



SCHEMATIC OF EX. PVC MAIN CONNECTION TO NEW HDPE MAIN

N.T.S.



TYPICAL WATER CONNECTION TO INDIVIDUAL UNITS

SCALE A1 - 1:200
SCALE A3 - 1:400

- THIS DRAWING TO BE READ IN CONJUNCTION WITH RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS.
- FIGURED DIMENSIONS ONLY TO BE TAKEN FROM THIS DRAWING. ALL DIMENSIONS TO BE CHECKED ON SITE. ENGINEER TO BE INFORMED IMMEDIATELY OF ANY DISCREPANCIES BEFORE WORK PROCEEDS.
- 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 1200mm WHERE PRACTICABLE.
- PIPE BEDDING SHALL COMPLY WITH WIS 4-08-02 AND IGN 4-08-01 GRANULAR MATERIAL SHALL BE 14mm TO 5mm GRADED.

- BACKFILL**
- CLAUSE 804 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 804 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE NATIONAL ROADS AUTHORITY SPECIFICATION FOR ROAD WORKS.
 - SELECTED EXCAVATED MATERIAL MAY BE USED IN GREEN FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO THE APPROVAL OF IRISH WATER.
 - IN SOFT GROUND CONDITIONS (CBR<5) THE MATERIAL SHOULD BE EXCAVATED OUT AND DISPOSED OF IN ACCORDANCE WITH THE WASTE MANAGEMENT ACT AND CLAUSE 804 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.
 - 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.
 - SHOULD MINIMUM COVER NOT BE ACHIEVABLE, CONCRETE GRADE C8/10 SHALL BE USED AS BACKFILL MATERIAL.
- WARNING MESH**
- 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.
 - TRENCH WIDTHS FOR PIPE SIZES $\leq 80\text{mm}$ MAY BE $\leq 500\text{mm}$, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS.
 - WATERMAIN PIPES SHALL BE SUBJECT TO IRISH WATER REQUIREMENTS:
 - DUCTILE IRON PIPES AND FITTINGS COMPLYING WITH I.S. EN 545.
 - POLYETHYLENE PIPES AND FITTINGS COMPLYING WITH I.S. EN 12201:2011.
 - SERVICE PIPES SHALL HAVE A MINIMUM 12mm INTERNAL DIAMETER & SHALL BE ONE OF THE FOLLOWING TYPES, UNLESS OTHERWISE APPROVED:
 - ANNEALED COPPER COMPLYING WITH B.S. 2871 PART 1, TABLE Y.
 - POLYETHYLENE PIPE TYPE 32 COMPLYING WITH I.S. 134 HEAVY GAUGE.
 - POLYETHYLENE PIPE TYPE 50 COMPLYING WITH I.S. 135 FITTINGS & SPECIALS SHALL BE APPROVED BY ENGINEER.

- STOPCOCKS**
- STOPCOCKS COMPLYING WITH B.S. 1010 SHALL BE PROVIDED ON EACH SERVICE PIPE. STOPCOCKS SHALL BE LOCATED IN FOOTPATH FRONTING THE PROPERTY BEING SERVED. THE DEPTH OF THE STOPCOCK SPINDLE SHALL NOT EXCEED 200mm.

- SLUICE VALVES**
- SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO I.S. 261 AND B.S. 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
 - SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN WATER MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF I.S. EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKING.
 - ALL SLUICE VALVES SHALL BE ANTI-CLOCKWISE CLOSING.
 - VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCK WORK. ALTERNATIVELY, PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
 - CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-13.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
 - THRUST BLOCKS (NOT SHOWN ON DRAWING) TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
 - ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH I.S. EN 206.
 - REFER TO IRISH WATER STD-W-14 AND 15 FOR CONSTRUCTION DETAILS.

- HYDRANTS**
- HYDRANT CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO I.S. 261 AND B.S. 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO THE APPROVAL OF IRISH WATER.
 - HYDRANTS SHALL BE DOUBLE FLANGED DRILLED TO PIN 16. THEY SHALL COMPLY WITH BS 750: 2012. THE HYDRANT SHALL INCORPORATE A SCREW DOWN GATE VALVE, UNDERGROUND "GUIDE TO HEAD" TYPE WITH SCREW DOWN CONNECTION OUTLET AND FALSE SPINDLE CAP AND IRON CHAIN.
 - ALL HYDRANTS SHALL BE CLOCKWISE CLOSING.
 - HYDRANT CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCK WORK. ALTERNATIVELY, PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO APPROVAL FROM IRISH WATER.
 - CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 MATERIAL AS PER STD-W-13.
 - 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH WITH PROTECTIVE STAINLESS STEEL METAL BAND AROUND COVERS IN GREEN AREAS.
 - THRUST BLOCKS (NOT SHOWN ON DRAWING) TO BE PROVIDED AS PER STANDARD DRAWING STD-W-28 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
 - ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
 - ALL CONCRETE TO BE IN ACCORDANCE WITH I.S. EN 206.
 - REFER TO IRISH WATER STD-W-16 TO 19 FOR CONSTRUCTION DETAILS.

- AIR VALVES**
- REFER TO IRISH WATER STD-W-20 TO 23 FOR CONSTRUCTION DETAILS.

- INDICATOR PLATES & MARKER POSTS**
- REFER TO IRISH WATER STD-W-27 FOR DETAILS OF ALL MARKER POSTS/PLATES.

- PRESSURE REDUCING/SUSTAINING VALVE CHAMBER**
- REFER TO IRISH WATER STD-W-24 FOR CONSTRUCTION DETAILS.

- BOOSTER PUMP STATION ARRANGEMENT**
- REFER TO IRISH WATER STD-W-25 FOR CONSTRUCTION DETAILS.

- METER CHAMBERS**
- REFER TO IRISH WATER STD-W-26 FOR CONSTRUCTION DETAILS. METER SPECIFICATION TO IRISH WATER APPROVAL.

- THRUST AND SUPPORT BLOCKS**
- REFER TO IRISH WATER STD-W-28 FOR CONSTRUCTION DETAILS.

- OTHER**
- REFER TO IRISH WATER STD-W-29 TO 37 FOR DUCT CHAMBER, SCOUR CHAMBER AND HEAD WALL ARRANGEMENT, DUCT/STREAM/BRIDGE CROSSINGS, SECURITY GATES AND FENCING, PIPE REPAIRS, TELEMETRY AND KIOSK AND LAMP BOLLARD STANDARD CONSTRUCTION DETAILS.

NOTES:

- 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

| Rev | Date | Description | By | Chkd. |
|-----|------------|---------------------|----|-------|
| B | 17.07.19 | Second Issue | FG | RD |
| A | 10.07.2019 | Issued for Planning | JK | RD |

Client: **Kegata Ltd.**

Project: **Residential Development at Roshill, Galway**

Title: **Standard Watermain Details**

Scale @ A1: **As Shown**

| | | |
|-------------------------------------|-------------|-----------------|
| Prepared by: JK | Checked: RD | Date: July 2019 |
| Project Director: Michael McDonnell | | |
| Drawing Status: Planning | | |

TOBIN
CONSULTING ENGINEERS

TOBIN Consulting Engineers,
Fairgreen House, Fairgreen Road,
Galway, Ireland.
tel: +353-(0)91-565211
fax: +353-(0)91-565398
e-mail: galway@tobin.ie
www.tobin.ie