Wastewater Infrastructure Standard Details

Connections and Developer Services

Design and Construction Requirements for Self-Lay Developments
July 2020 (Revision 4)

Document IW-CDS-5030-01
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<th>Author</th>
<th>Approver</th>
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<td>April 2016</td>
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<td>TO'C</td>
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<td>General revisions &amp; drawings added</td>
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Background

Technical Documentation has been developed by Irish Water’s Connections and Developer Services which outlines the requirements for wastewater services infrastructure within developments.

These Standard Details have been developed to outline to developers Irish Water’s requirements for the provision of wastewater infrastructure that is to be installed in developments and that would be connected to Irish Water’s networks and subsequently vested in Irish Water.

The Standard Details outline design and construction requirements to ensure consistency in the provision of materials, equipment and workmanship, etc. They also provide the basis for developers’ detailed design proposals for wastewater infrastructure, leading to the provision of infrastructure that is suitable for connection to Irish Water’s networks and easy operation and maintenance of the new infrastructure.

The Standard Details are based on best practice within the water industry. They take account of the experience of Local Authorities in the provision of these services to new developments. They have been successfully used by Irish Water’s own internal functions for a variety of projects and they are in line with water utility industry norms.

There are 58 No Standard Details dealing with wastewater infrastructure covering all aspects of such infrastructure.

These Standard Details are accompanied by a Design Risk Assessment (DRA) (document number IW-CDS-5030-02), which outlines the residual health and safety responsibilities of developers and their designers/contractors in the provision of such infrastructure.

The use of the Standard Details is mandatory in all new Irish Water Connection Agreement Offers issued after 1st June 2016.
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These Standard Details show the acceptable typical details and outline the minimum standards that are required by Irish Water for the provision of wastewater pipes and related infrastructure which are to be connected to the Irish Water Network. They shall be used in conjunction with the associated Code of Practice for Wastewater Infrastructure and Design Risk Assessments that have been developed which identify the risks that designers shall take into account in the detailed design of the wastewater pipes and related infrastructure to be connected to the Irish Water Network. The pipes and related infrastructure to be put in place within developments shall comply fully with these Standard Details. Ultimate responsibility (including, but not limited to, any losses, costs, demands, damages, actions, expenses, negligence and claims) for the detailed design, construction and provision of such pipes and related infrastructure shall rest entirely with the Developer, his/her Designer(s), Contractor(s) or other connected party. Irish Water assumes no responsibility for and gives no guarantees, undertakings or warranties in relation to the pipes and related infrastructure to be provided in accordance with these Standard Details.

No part of the Standard Details shall be reproduced or transmitted in any form or stored in any retrieval system of any nature without the prior written permission of Irish Water as copyright holder, except as agreed for use.

These Standard Details shall be used in conjunction with current Irish Water Codes of Practice, which will take precedence over the Standard Details.

These Standard Details may also be used for the installation of wastewater infrastructure for Asset Delivery Works & Capital Project Works Programmes at the discretion of Irish Water.

July 2020
MAINTENANCE RESPONSIBILITY OF THE WASTEWATER SERVICE CONNECTIONS FROM THE SEWER TO THE BOUNDARY IS SET OUT IN THE PIPE MAINTENANCE RESPONSIBILITY DIAGRAMS INCLUDED ON THE IW WEBSITE @ WWW.WATER.IE

(A) SEWER  IRISH WATER

(B-C) SERVICE CONNECTION  (INCLUDING SADDLE)  SEE NOTE ABOVE

INSPECTION CHAMBER  PROPERTY OWNER

(C-D) DRAIN  PROPERTY OWNER

INTERNAL PLUMBING  PROPERTY OWNER

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT
1. The minimum size for a gravity foul service connection shall be 100mm diameter.

2. The minimum size of gravity foul sewer shall be 225mm diameter in general. Gravity sewers on branches serving 20 or less properties to be 150mm diameter subject to agreement with Irish Water.

3. The minimum size for rising mains shall not be less than 80mm & the desired minimum size of rising mains shall be 100mm diameter.

4. Each property shall have a separate waste water service connection. A connection shall not be taken from an existing service connection.

5. For sites with high density developments, early engagement is required in relation to agreeing a co-ordinated utility services layout plan to ensure that the required separation distances are achieved between the various services.

Where such areas are available

The location of the water main off of the footpath may be considered by Irish Water subject to early engagement by the developer with the CSS design team.

Refer to index sheet for notes regarding design responsibility & risk assessment

Typical layout for sewer within new developments

Plan co-ordinates & I.L. of pipe end TBC by developers design engineer prior to commencement of works

Rocker pipe end to be capped to ensure pipe is kept free from debris & vermin

Wastewater connection interface at site boundary

Typical layout of services in footpath / road

Refer to index sheet for notes regarding design responsibility & risk assessment

Standard details - wastewater

Refer to index sheet for notes regarding design responsibility & risk assessment

Typical layout for sewer within new developments

Plan co-ordinates & I.L. of pipe end TBC by developers design engineer prior to commencement of works

Rocker pipe end to be capped to ensure pipe is kept free from debris & vermin

Wastewater connection interface at site boundary

Typical layout of services in footpath / road

Refer to index sheet for notes regarding design responsibility & risk assessment

Standard details - wastewater
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. An inspection chamber should be located at or within 1m of the property boundary at the upstream end of each service connection on the private side of the curtilage. If practicable, consult with Irish Water on alternative locations.
3. Any pipe and associated access upstream of the point of connection to a public sewer within the confines of a private boundary is a private drain and should be constructed in accordance with building regulations.

SECTION SHOWING DRAIN AND SERVICE CONNECTION PIPEWORK

<table>
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<th>PIPE SIZE (mm)</th>
<th>GRADIENT</th>
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</thead>
<tbody>
<tr>
<td>100</td>
<td>1.40 - 1.80</td>
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</table>
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 developer shall bring the service connection 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 within the acceptable range of 30° to 90°.

4. Where the service pipe connection within the footprint of the self lay agreement 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, the following shall apply:
   A. Where 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. Where the diameter of the connection pipe is less than or equal to half the diameter of the sewer, then the connection shall be made using a prefitted Y-branch fitting with a 45° SLOW BEND TO FORM THE CONNECTION TO THE WORKS.

6. Connection using saddles may only be used in exceptional circumstances and only to where the connection is to an existing sewer. 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.

7. The use of 90° "Y"-branch or saddle connections to the sewer may be allowed, provided the saddle or branch incorporates a swept tee connection towards the direction of flow of the sewer.
1. SEPARATION DISTANCES BETWEEN SEWERS ASSOCIATED WITH THE WORKS FROM OTHER UTILITY PIPES AND ACCESSORIES SHALL BE IN ACCORDANCE WITH SECTION 3.5.9 TO 3.5.21 OF THE CODE OF PRACTICE. SEPARATION DISTANCES FOR ALL NEW INSTALLATIONS FROM EXISTING IRISH WATER PIPELINES SHALL BE AS OUTLINED IN SECTION 3.20 OF THE CODE OF PRACTICE.

2. SPECIFIC SEPARATION CLEARANCE DISTANCES IN EXCESS OF THOSE 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 WHERE THE DEPTH OF THE EXISTING INFRASTRUCTURE DOES NOT EXCEED 1.5m:

   HORIZONTAL
   1m AT EITHER SIDE OF AN EXISTING PIPE LESS THAN 200mm IN DIAMETER.
   2m AT EITHER SIDE OF AN EXISTING PIPE OF 200mm TO 350mm IN DIAMETER.
   5m AT EITHER SIDE OF AN EXISTING PIPE OF 350mm OR GREATER IN DIAMETER.

   WHERE DUCTS OR PIPE ARE TO BE LAID CLOSE TO AN EXISTING WATER MAIN 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. THIS ALSO APPLIES WHERE THE DEPTH OF THE NEW WATER MAIN OR SEWER EXCEEDS 1.5m. IN ALL OF THESE INSTANCES, SPECIFIC WRITTEN APPROVAL WILL BE REQUIRED FROM IRISH WATER BEFORE PROCEEDING WITH THE WORK.

   REQUIREMENTS SHALL ALSO APPLY TO TRIAL HOLES OR SLIT 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.

   DEVELOPERS SHALL ALSO COMPLY WITH ANY NOTIFICATION REQUIREMENTS OF OTHER UTILITY PROVIDERS (ESB, GAS MAIN, TELECOMMUNICATION ETC.).

   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 AGREEMENT 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.

   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.

   UNDER NO CIRCUMSTANCES WILL IRISH WATER ACCEPT SEWER MAIN INSTALLATIONS UNDER STRUCTURES, EXISTING OR PROPOSED, OR IN CLOSE PROXIMITY TO ANY EXISTING STRUCTURES OR FEATURES THAT WILL INHIBIT ACCESS FOR POST INSTALLATION MAINTENANCE AND ACCESS.

   THE MINIMUM CLEAR HORIZONTAL DISTANCES SHOWN BELOW WILL BE INCREASED IF THE DEPTH OF THE SEWER EXCEEDS 3M OR IF THE DIAMETER IS GREATER THAN 375mm.

   MINIMUM CLEAR DISTANCES FOR PIPE DIAMETERS OF 450mm AND GREATER OR FOR DEPTHS EXCEEDING 4.0m SHALL BE BASED ON SPECIFIC CONSULTATION WITH IRISH WATER. THESE SEPARATION DISTANCES SHALL ALSO APPLY TO SEPARATION FROM EXISTING STRUCTURES, INCLUDING ATTENUATION TANKS AND SWALES.

   THE EXTERNAL FACES OF MANHOLES SHALL BE AT LEAST 0.5m FROM THE EXTERNAL FACE OF THE KERB LINE.

   THE EXTERNAL WALL OF THE SEWER IS TO BE AT LEAST 1.0m FROM THE EXTERNAL FACE OF THE KERB LINE.

   WHERE DESIGN DEVIATES FROM TYPICAL DETAILS, THE LAYOUT SHALL BE SUBMITTED TO IRISH WATER FOR REVIEW AND AGREEMENT, WHICH IS TO BE OBTAINED IN WRITING BEFORE WORK COMMENCES.
**Vertical Separation required between 100mm Ø Service Connections and other Irish Water Services at Crossings in Non-Trafficked Green Areas, Verges and Footpaths**

**Separation distances for wastewater service connection to other utility services will be as shown, as a minimum, and may be increased if required by the other Utility Company.**

** NETWORK FOUL AND PIPE BELOW **

**Sewer Crossings (Foul & Storm). Minimum Pipe Bedding under Upper Pipe to be Achieved. Applies to Non-Trafficked Areas Only.**

**Separation distances for wastewater service connection to other utility services will be as shown, as a minimum, and may be increased if required by the other Utility Company.**

<table>
<thead>
<tr>
<th>Separation distance between Service Connection above and Irish Water pipe below.</th>
<th>Separation distance between Service Connection below and Irish Water pipe above if pipe is 100mm Ø or less.</th>
<th>Separation distance between Service Connection below and pipe above if pipe exceeds 100mm Ø.</th>
<th>Separation distance between Network Sewer above and pipe below.</th>
<th>Separation distance between Network Sewer below and pipe above.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non Trafficked Areas</td>
<td>100mm</td>
<td>100mm</td>
<td>150mm</td>
<td>Pipe bedding depth of the upper pipe.</td>
</tr>
<tr>
<td>Trafficked Areas</td>
<td>150mm</td>
<td>150mm</td>
<td>150mm</td>
<td>300mm</td>
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</tbody>
</table>

**Separation distances for wastewater service connection to other utility services will be as shown, as a minimum, and may be increased if required by the other Utility Company.**
EXISTING PLANTING:

METHODOLOGY:
ALL WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BS 5937 AND INFORMED BY NJUG VOLUME 4

PRECAUTION AREA:
EXCAVATIONS FOR PIPEWORK SHOULD NOT BE UNDERTAKEN WITHIN THIS AREA, UNLESS AGREED WITH IRISH WATER.

WORKS WITHIN THE PRECAUTION ZONE MUST BE SUPERVISED BY A QUALIFIED ARBOURIST. WORKS SHALL BE SUBJECT OF A CLEAR METHOD STATEMENT OUTLINING ALL WORKS ADJACENT TO THE TREES/SHRUBS WHICH IS TO BE PREPARED & AGREED IN ADVANCE OF THE WORKS.

MATERIAL, PLANT & SPOIL SHALL NOT BE STORED WITHIN THIS ZONE.

EXCLUSION AREA:
WORKS IN THIS AREA ARE TO BE AVOIDED, UNLESS ABSolutely NECESSARY & AGREED WITH IRISH WATER.

EXCAVATIONS FOR PIPEWORK SHOULD NOT BE UNDERTAKEN WITHIN THIS AREA, UNLESS NECESSARY AND NO OTHER OPTIONS AVAILABLE. WORKS WITHIN THE EXCLUSION ZONE MUST BE SUPERVISED BY A QUALIFIED ARBOURIST AND AGREED WITH IRISH WATER. WORKS SHALL BE SUBJECT OF AN ARBOURICULTURAL IMPACT ASSESSMENT AS PER BS 5937 & A CLEAR METHOD STATEMENT OUTLINING ALL WORKS ADJACENT TO THE TREES/SHRUBS IS TO BE PREPARED AND AGREED IN ADVANCE OF THE WORKS. MATERIAL, PLANT & SPOIL SHALL NOT BE STORED WITHIN THIS ZONE.

OUTSIDE RADIUS OF PRECAUTION AREA = 4 x GIRTH OF TREE

Girth (Circumference of tree measured at 1.5m above ground level)

PREVENTION MEASURES
REQUIRED IN LINE WITH LANDSCAPING DESIGN & SPECIAL PROTECTION REQUIRED, i.e. BY USE OF APPROPRIATE BARRIERS, HIGH PERFORMANCE JOINTS, OR BY USE OF POLYETHYLENE WITH WELDED JOINTS, THE LANDSCAPE DESIGN AND DETAILS OF THE SPECIAL PROTECTION MEASURES MUST BE AGREED WITH IRISH WATER

Refer to index sheet for notes regarding design responsibility & risk assessment

STANDARD DETAILS - WASTEWATER
RESTRICIONS ON WASTEWATER INFRASTRUCTURE WORKS ADJACENT TO TREES

DRAWING No.
STD-WW-06

DATE
SEPT. 2015

REV
2
The distances given in Table A.1 of BS 5837 must be further informed by the species & in Diagram 2 below. Diagram 1 above provides a flow chart to the decision process whilst Diagram 2 below is to be used to inform the planting regime.

Please note that Table A.1 of BS 5837 (below) is to be used to calculate the absolute minimum distance between new tree planting from the wastewater infrastructure (the services). The distance is required to avoid direct damage to the infrastructure. From future growth, the distance is a function of the depth of the services and the (final expected) stem diameter of the tree at maturity (i.e., final expected growth).

<table>
<thead>
<tr>
<th>Services</th>
<th>Final stem dia. &lt; 300mm</th>
<th>Final stem dia. 300mm to 600mm</th>
<th>Final stem dia. &gt; 600mm</th>
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<tbody>
<tr>
<td>&lt; 1m deep</td>
<td>0.5</td>
<td>1.5</td>
<td>3.0</td>
</tr>
<tr>
<td>&gt; 1m deep</td>
<td></td>
<td>1.0</td>
<td>2.0</td>
</tr>
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</table>

Thus, for example:
- For a service less than 1 metre deep, the minimum distance is to be 1.5m for a tree between 300 and 600mm stem diameter at maturity.
- For a service greater than 1 metre deep, the minimum distance is to be 1m for a tree between 300 and 600mm stem diameter at maturity.

Note: Restrictions relate to infrastructure without root intrusion protection.

The design of landscaping shall be undertaken in conjunction with the design of wastewater infrastructure, etc. The trees/shrubs shall not be located closer to the wastewater infrastructure than indicated above, except where special protection measures are provided. Where there is a risk of tree/root intrusion, the wastewater infrastructure shall be resistant to tree root ingress (e.g., by use of appropriate barriers, high performance joints, or by use of polyethylene with welded joints for rising main). The landscape design and details of the special protection measures must be agreed with Irish Water.

A tree shall not be planted directly over wastewater infrastructure where excavation of the infrastructure would require removal of the tree unless such planting is agreed with Irish Water and in general only shallow root shrubs shall be planted close to wastewater infrastructure.

Please ensure that these distances are adhered to in order to protect the trees from any future maintenance, reference should also be made to BS 5837, BS 8545 and the NJUG guidelines volume 4 for further information.

Diagram 2: Planting Distances for Different Species Without Barrier Protection

Examples of Large Coniferous Trees
- Scots Pine, Black Pine, Cedar, (Larch), Lawson’s Cypress
- Ash, Beech, Sycamore, Hornbeam, Chestnut, Sweet Chestnut, Lendon Plane, Lime, Alder, Elm, Oak

Examples of Large Deciduous Trees
- Field Maple, Wild Cherry, Crab Apple, Cognut, Birch, Elder, Ornamental Pear

Examples of Small Size Amenities Trees
- Mountain Ash, Whitebeam, Cockspur Thorn, False Acacia, Hornbeam Cv.

Examples of Shrubs and Bushes
- Holly, Laurel, Rhododendron, Dogwood, Christmas Tree, Magnolia, Fruit bushes, Spindle Tree, Guelder rose, Roses

Examples of hedge plants and ground covers including
- Perennials and annuals

Hedge plants and ground covers may be placed over the pipeline
- Privet, Blackthorn, Snowberry, Berberries, Heather, Cotoneaster & Ground Cover, Herbaceous & Annuals

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. THE MINIMUM DEPTH OF COVER FROM THE FINISHED SURFACE TO THE CROWN OF GRAVITY PIPES WITHOUT PROTECTION SHOULD BE AS FOLLOWS: A) GARDENS AND PATHWAYS WITHOUT ANY POSSIBILTY 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.) B) DRIVEWAYS, FOOTWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. NEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONEE - DEPTH NOT LESS THAN 0.9 M. C) DRIVEWAYS, FOOTWAYS, PARKING AREAS AND NARROW STREETS WITHOUT FOOTWAYS (E.G. NEWS DEVELOPMENTS) WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONEE - DEPTH NOT LESS THAN 0.9 M. D) DEPTHS OF SEWERS IN GATED ESTATES SHALL BE SIMILAR TO THAT OUTLINED ABOVE. E) AGRICULTURAL LAND AND PUBLIC OPEN SPACE - DEPTH NOT LESS THAN 0.9 M.

3. CLAUSE 804 / 808 MATERIAL IN ACCORDANCE WITH THE TRANSPORT INFRASTRUCTURE IRELAND SPECIFICATION FOR ROAD WORKS IS TO BE USED AS BACKFILL MATERIAL WHERE THE SEWER MAIN IS LOCATED IN ROADWAYS OR FOOTPATHS OR WHEN THE NEAREST PART OF THE TRENCH IS WITHIN 1m OF THE NEW EDGE OF THE ROADWAY. CLAUSE 804 / 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE TRANSPORT INFRASTRUCTURE IRELAND SPECIFICATION FOR ROAD WORKS. CLAUSE 804 IS TO BE USED WITHIN 500mm OF CEMENT BOUND MATERIALS, CONCRETE PAVEMENTS, CONCRETE STRUCTURES OR CONCRETE PRODUCTS. OTHERWISE CLAUSE 804 MAY BE USED. ALTERNATIVE BACKFILL MATERIAL TO THAT DESCRIBED ABOVE (CLAUSE 804 OR CLAUSE 888) OF THE PIPE TRENCH WILL ONLY BE ALLOWED BY IRISH WATER WHERE THE ROAD AUTHORITY IN WHOSE FUNCTIONAL AREA THE DEVELOPMENT IS LOCATED, PROVIDES WRITTEN APPROVAL TO THE DEVELOPER TO USE SUCH ALTERNATIVE MATERIAL EVIDENCE OF THIS WRITTEN APPROVAL TO BE PROVIDED TO IRISH WATER IN ADVANCE OF THE COMMENCEMENT OF WORKS. 4. SELECTED EXCAVATED MATERIAL, COMPLYING WITH THE REQUIREMENTS OF "ACCEPTABLE MATERIAL" AS OUTLINED ON CLAUSE 601 OF THE TII SPECIFICATION FOR ROADWORKS. TABLE 6.1 CLASS 8 CLASS 2. MAY BE USED IN GREEN-FIELD AREAS ABOVE GRANULAR PIPE SURROUND MATERIAL SUBJECT TO REVIEW BY IRISH WATER. 5. PIPE BEDDING SHALL COMPLY WITH WS 4-02-02 AND IGN 4-02-01. 6. IN SOFT GROUND CONDITIONS (CRR - 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 REQUIREMENTS OF "ACCEPTABLE MATERIAL" OUTLINED ABOVE. 7. IN GREEN FIELD AREAS, TYPE B BACKFILL (SELECTED EXCAVATED MATERIAL COMPLYING WITH THE REQUIREMENTS OF "ACCEPTABLE MATERIAL") AS OUTLINED ON CLAUSE 601 OF THE TII SPECIFICATION FOR ROADWORKS. TABLE 6.1 / CLASS 8 CLASS 2. WILL BE ALLOWED ABOVE THE BASE 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. A GRANULAR MATERIAL ABOVE THE EXTERNAL CROWN OF THE PIPE BEDDING GRANULAR MATERIAL SHALL BE 14mm TO 5mm (D90). CONCRETE PAVEMENTS, CONCRETE STRUCTURES OR CONCRETE PRODUCTS. OTHERWISE CLAUSE 804 / 808 IS TO BE COMPACTED AS PER CLAUSE 802 OF THE TRANSPORT INFRASTRUCTURE IRELAND SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID WITH LIMITED ACCESS FOR VEHICLES WITH A GROSS VEHICLE WEIGHT IN EXCESS OF 7.5 TONNES - DEPTH NOT LESS THAN 0.9 M. 8. PIPES SHALL NOT BE SUPPORTED ON STONES, ROCKS OR HARD OBJECTS AT ANY POINT ALONG THE TRENCH. ROCK SHALL BE EXCAVATED TO A DEPTH OF 150mm ABOVE THE CROWN OF THE PIPE IS REQUIRED FOR FLEXIBLE PIPES. A GRANULAR MATERIAL ABOVE THE EXTERNAL CROWN OF THE PIPE BEDDING. 9. NCN DEGRADABLE MARKER TAPE SHOULD BE INSTALLED AT THE TOP OF PIPE BEDDING LAYER FOR SEWERS AND RISING MAINS. IT SHOULD RUN CONTINUOUSLY ALONG THE TRENCH. THE MARKER TAPE SHOULD BE EXCAVATED TO A DEPTH OF 150mm above the actual depth of the trench with the void filled with CLAUSE 804 / 808 MATERIAL IN ACCORDANCE WITH THE TRANSPORT INFRASTRUCTURE IRELAND SPECIFICATION FOR ROAD WORKS. THE GRANULAR MATERIAL SHALL BE LAID ABOVE THIS VOID BACKFILL MATERIAL. 10. TRENCH WIDTHS FOR PIPE SIZES ≥500mm MAY BE ≥400mm, SUBJECT TO CONSIDERATION BEING GIVEN TO THE TRENCH DEPTH, HEALTH & SAFETY & CONSTRUCTION ACCESS REQUIREMENTS. 11. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS. 12. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.
1. FOR ANY SLABBING WORKS TO BE CARRIED OUT WITHIN THE VICINITY OF THE PIPELINE, A METHOD STATEMENT IS TO BE SUBMITTED FOR REVIEW BY IRISH WATER.

2. MARKER TAPE TO BE PLACED ABOVE THE SLAB AND ALONG THE DIRECTION OF THE PIPELINE.

3. CONCRETE TO BE GRADE C30/35.

4. MINIMUM COVER TO STEEL REINFORCEMENT = 40mm.

5. SLABS TO BE DESIGNED FOR USE UNDER A HB25 LOAD IN ACCORDANCE WITH BS5400-2. DESIGN TO BE SUBMITTED TO IRISH WATER FOR ASSESSMENT PRIOR TO INSTALLATION.

6. THE SOIL ON WHICH THE SLAB RESTS MUST HAVE A CBR OF 4% OR GREATER. WHERE THE CBR IS LESS THAN 4%, THE MATERIAL SHALL BE REMOVED AND REPLACED WITH IMPORTED GRANULAR MATERIAL AS APPROVED BY IRISH WATER.

7. IF DIRECTION OF PIPELINE AND DIRECTION OF TRAFFIC FLOW ARE PARALLEL, THE DIRECTION OF LAY OF THE SLAB IS TO BE AGAINST THE DIRECTION OF TRAFFIC FLOW.

8. IF PIPELINE PROTECTION SLAB IS TO BE USED SOLELY FOR IMPACT PROTECTION & OVERALL DEPTH OF COVER IS GREATER THAN 1.2m, THE DISTANCE BETWEEN UNDERSIDE OF SLAB & TOP OF PIPE MAY BE INCREASED AFTER CONSULTATION WITH IRISH WATER.

9. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

10. CONCRETE BED AND HAUNCHES MAY BE REQUIRED TO PROVIDE ADDITIONAL SUPPORT IN POOR GROUND CONDITIONS. PROPOSALS TO BE PROVIDED TO IRISH WATER WITH GEOTECHNICAL REPORT SUPPORTING THEIR USE.

11. CONCRETE SURROUND SHALL HAVE A MINIMUM THICKNESS OF 150mm WITH AN ABSOLUTE MINIMUM DEPTH OF COVER ABOVE THE EXTERNAL CROWN OF THE PIPE OF 750mm.

12. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

13. THE HAUNCHES AND SURROUND TO BE FORMED USING FORM WORK TO PROVIDE A ROUGH CAST FINISH.

14. 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.

15. POLYETHYLENE AND uPVC PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6076 BEFORE BEING CAST INTO CONCRETE.

16. BITUMINOUS MATERIAL SHALL NOT BE PUT IN CONTACT WITH PE OR PVC PIPES.
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Solid blockwork to be at high strength (20N/mm²) to IS EN 124. Blockwork to be set in M30 mortar to IS EN 466.
3. Maximum depth of blockwork manhole is 1.2m (The use of blockwork in deeper manholes will be considered but such use will require detailed structural design and be subject to Irish Water review).
4. Walls to be flush pointed and not plastered internally. Internal lining of engineering brick to IS EN 771-1 to a height of 900mm above benching. Engineering brick to be bonded to blockwork using English Garden Wall Bond.
5. Structural design and reinforcement details for roof and base slabs to be provided by the developer and submitted to Irish Water for review. Manhole roofs shall consist of a reinforced concrete slab of in-situ concrete, C30/37, 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 IS EN 1917 and IS 420.
6. Covers and frames shall be suitable for road and traffic conditions subject to review from Irish Water.
7. 200mm all around x 100mm deep, C20/25 concrete plinth complete with bull nose finish to be provided complete with mild steel reinforcement link around covers in green areas.
8. All chambers to be checked for uplift by the developer based on ground conditions within the site. Should anti-floatation measures be required they shall be subject to review by Irish Water.
9. All concrete to be in accordance with IS EN 206:2013.
10. Any special road reinstatement around cover & frame shall be to road authority's requirements.
11. New road construction & surface finish to be to road authority requirements.
12. Existing road reinstatement to comply with current version of "Guidelines for Managing Openings in Public Roads" by the Dept. of Transport, Tourism & Sport, or Transport Infrastructure Ireland requirements.
13. Covers shall be set with rapid hardening cementitious, epoxy resin or polyester resin mortar for setting manhole covers & frames, & shall require they shall be subject to review by Irish Water.

**Rocker Pipe**

<table>
<thead>
<tr>
<th>PIPE DIAMETER (mm)</th>
<th>ROCKER PIPE LENGTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GREATER THAN 600</td>
<td>1000</td>
</tr>
<tr>
<td>GREATER THAN 750</td>
<td>1200</td>
</tr>
<tr>
<td>GREATER THAN 900</td>
<td>1400</td>
</tr>
</tbody>
</table>

*Sewers greater than 450mm dia are outside the scope of the standard details. Manhole size of these chambers may be required due to multiple pipes within manhole.

**REFERENCES**

- "Guidelines for Managing Openings in Public Roads" by the Dept. of Transport, Tourism & Sport, or Transport Infrastructure Ireland
- "BLOCKWORK MANHOLE (< 450mm Dia.)"
**NOTE:** PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CPRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. **PRE-CAST MANHOLE BASES:** COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420.
3. **THICKER MANHOLE BASES** REQUIRED FOR SEVERES IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
4. **APPROVED PRE-CAST CONCRETE BASES** MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH IS EN 1917.
5. **STRUCTURAL DESIGN AND REINFORCEMENT DETAILS** TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
6. **MANHOLES** GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.
7. **MANHOLE ROOFS** SHALL CONSIST OF A RE-INFORCED CONCRETE SLAB OF IS EN 14396 C30/37. 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 IS EN 1917.
8. **COVERS AND FRAMES** SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
9. **200mm ALL AROUND A 100mm DEEP. 200mm CONCRETE PŁATİN COMPLETED**) WITH FULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT. LINK AROUND COVERS IN GREEN AREAS.
10. **ALL CHAMBERS** TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULDED ANTI-FLOATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
11. **ALL CONCRETE** TO BE IN ACCORDANCE WITH IS EN 206 : 2013.
12. **ALL SPECIAL ROAD REHABILITATION** AROUND COVER BASE SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
13. **NEW ROAD CONSTRUCTION** A SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
14. **EXISTING ROAD REHABILITATION** TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.
15. **IF DEPTH FROM GROUND TO PIPE SOFTT IS GREATER THAN 6m DEEP, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.**
16. **FORCE WATERTIGHT** PRE-CAST CONCRETE BASE SYSTEMS WITH A WALL THICKNESS > 125mm & WATER TIGHT JOINT SEALING MATERIALS MAY BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BRING LOW, & SUBJECT TO REVIEW BY IRISH WATER.
17. **THE INTERNAL MANHOLE DIAMETERS SHOWN IN THE TABLE BELOW ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS AND FINISHED WITH A 1:3 SANDCIMENT FINISH TO SUIT FLOW OF INLETS AND OUTLET.

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**SECTION A-A**

**FLEXIBLE JOINT**

**ROCKER PIPE (SEE TABLE BELOW)**

**ROCKER PIPE (SEE TABLE BELOW)**

**PIECE-JOINT WITH CHANNEL TO BE LOCATED MINIMUM 100mm INSIDE FACE OF MANHOLE AND NOT MORE THAN 200mm.**

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**MINIMUM MANHOLE DIAMETERS**

<table>
<thead>
<tr>
<th>DIAMETER OF LARGEST PIPE IN MANHOLE (mm)</th>
<th>INTERNAL DIAMETER OF MANHOLE (mm)</th>
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<tr>
<td>LESS THAN 375</td>
<td>1200</td>
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<td>375 TO 450</td>
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</tr>
<tr>
<td>500 TO 750</td>
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**ROCKER PIPE LENGTH**

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**MANHOLE DETAİL > 3m & < 6m**

**GROUND TO SOFTT DEPTH**

*NOTE: ON MANHOLES <1.5mØ, REDUCING SLAB NOT TO BE USED & PCC RINGS TO CONTINUE UP TO COVER SLAB.*

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**REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT**

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**NOTES UPDATED**

**NOT TO SCALE**

**DATE:** SEPT. 2015

**DRAWING NO.:** STD-WW-10

**REV.:** 3
NOTE: PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE. WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND IN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CPRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRECAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 13101, TYPE D, CLASS 1, MANHOLE STEPS TO COMPLY WITH IS EN 1917: 2004.
3. PRECAST CONCRETE MANHOLE BASE UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 14396.
4. IF DEPTH FROM GROUND TO PIPE SOFTP IS GREATER THAN 600mm DEEP, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.
5. PROPRIETARY WATERTIGHT PCC MANHOLE RING SYSTEMS WITH A WALL THICKNESS > 125mm, & A WATER TIGHT JOINT SEALING SYSTEM, MAY BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BEING LOW, & SUBJECT TO REVIEW BY IRISH WATER.
6. THE INTERNAL MANHOLE DIMETERS SHOWN IN THE TABLE BELOW ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS AND FINISHED WITH A 1:3 SANDCUSHION FINISH TO SUIT FLOW OF INLETS AND OUTLET.

MANHOLE DETAILS > 3m & < 6m
GROUND TO SOFFT DEPTH
NOTE: ON MANHOLES >1.5m REDUCING SLAB NOT TO BE USED & PCC RINGS TO CONTINUE UP TO COVER SLAB.

REVIEW TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WASTEWATER

PRE-CAST CONCRETE MANHOLE WITH PRECAST BASE.

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MANHOLE COVER AND FRAME SHALL COMPLY TO IS EN 124 AND BS 7903. ALL CLASS D323 COVERS SHALL HAVE MIN. FRAME DEPTH 100-150mm MIN. ØPE, 600x600mm or 600mm Ø.

FINISHED GROUND LEVEL

1 Min. TO 3 Max. COURSES OF CLASS B SOLID FRAME DEPTH 100-150mm) MIN. OPE. MANHOLE COVER AND FRAME SHALL LEVEL (2 No. MAX.) USED TO ACHIEVE CORRECT TOP OF COVER PIECES BEDDED ON M30 MORTAR MAY BE ENGINEERING BRICKS SET IN M30 MORTAR CLASS D400 COVERS SHALL HAVE MIN.

COMPLY TO IS EN 124 AND BS 7903 (ALL 600x600mm or 600mm Ø. MANHOLE LADDERS ARE REQUIRED TO ISEN 998 PROPRIETARY PRECAST RISER ENCAPSULATED. STEPS ARE REQUIRED EN 13101, TYPE D, CLASS 1, EXCESS OF 3.0m & LADDERS ARE TO BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BEING LOW, & A SUBJECT TO REVIEW BY IRISH WATER.

GALVANISED MILD STEEL & PLASTIC SUPPORTS AT 1.0m CENTRES MAX.

MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLAB MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH IS EN 1917. MANHOLES DEEPER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.

5. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.

6. PROVIDED GENEAL DEEPER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.

7. MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS. ALTERNATIVELY, APPROVED PRE-CAST CONCRETE ROOF SLAB MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH IS EN 1917.

8. COVER AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.

9. 200mm ALL AROUND x 100mm DEEP, C20/25 CONCRETE PLINTH COMPLETE W/ BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT LINK AROUND COVERS IN GREEN AREAS.

10. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANY FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.

11. ANY SPECIAL ROAD REINSTALLMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY REQUIREMENTS.

12. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.

13. IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6m DEEP, A STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.

14. EXISTING ROAD REINSTALLMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

15. IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6m DEEP, A STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.

16. IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6m DEEP, A STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.

17. THE INTERNAL MANHOLE DIAMETERS SHOWN IN THE TABLE BELOW ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS AND OUTLETS. A 1.2 SAND/CEMENT FINISH TO SAT FLOW OF INLETS AND OUTLET.

**NOTE:** IF FLEXIBLE PIPES ARE BEING USED, ROCKER PIPES ARE NOT REQUIRED.

**NOTE:** PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.

**NOTE:** SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS. MANHOLE SIZE OF THESE CHAMBERS MAY BE REQUIRED DUE TO MULTIPLE PIPES WITHIN MANHOLE.

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 430.

3. THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.

4. APPROVED PRE-CAST CONCRETE BASES MAY BE USED WITHOUT CONCRETE SURROUND, SUBJECT TO THE GROUND WATER LEVEL AT THE MANHOLE BEING LOW, & A SUBJECT TO REVIEW BY IRISH WATER.

5. PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.

**NOTE:** SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS. MANHOLE SIZE OF THESE CHAMBERS MAY BE REQUIRED DUE TO MULTIPLE PIPES WITHIN MANHOLE.
1. **ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.**
2. **PRE-CAST MANHOLES UNITS COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420.**
3. **THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.**
4. **APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER REVIEW AND COMPLYING WITH IS EN 1917 & IS 420.**
5. **STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.**
6. **MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILLED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.**
7. **MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, WITH A MINIMUM THICKNESS OF 225mm DESIGNED TO CARRY ALL LIVE AND DEAD LOADS.**
8. **APPROVED PRE-CAST CONCRETE ROOF SLABS MAY BE USED SUBJECT TO IRISH WATER REVIEW AND COMPLIANCE WITH IS EN 1917.**
9. **COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.**
10. **MIN. 600x600mm OR 600mm Ø.**
11. **MASTER RINGS TO COMPLY TO C30/37, WITH A MINIMUM THICKNESS OF 225mm.**
12. **ENGINEERING BRICKS SET IN M30 MORTAR MAY BE USED TO ACHIEVE CORRECT TOP OF COVER LEVEL (2 No. Max.).**
13. **PIECES BEDDED ON M30 MORTAR.**
14. **LEVEL (2 No. Max.).**
15. **SURFACE MOUNTED KNIFE GATE VALVE OPERATED FROM ABOVE.**
16. **SURFACE MOUNTED KNIFE GATE VALVE OPERATED FROM ABOVE.**
17. **SURFACE MOUNTED KNIFE GATE VALVE OPERATED FROM ABOVE.**
18. **SURFACE MOUNTED KNIFE GATE VALVE OPERATED FROM ABOVE.**
19. **PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH IS EN 1917 - 2004.**
20. **MANHOLES WITH A DEPTH IN MANHOLES UP TO A GROUND TO PIPE 600x600mm OR 600mm Ø.**
21. **MANHOLE LADDERS ARE REQUIRED TO EN 681.**
22. **MAX. 600**

**PRECAST CONCRETE BASE UNIT WITH INTEGRAL VERTICAL WALL SECTION TO ACCOMMODATE FLUSH MOUNTING OF PENSTOCK.**

**PRECAST CONCRETE MANHOLE BASES ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.**

**NOTE:**

- **PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.**

**REVIEW SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT:**

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**DRAWING NO.** STD-WW40C

---

**DATE** SEPT. 2015

---

**NAME** RH

---

**SCALE** NOT TO SCALE

---

**TITLE** PRE-CAST CONCRETE PUMPING STATION INLET MANHOLE WITH PRE-CAST CONCRETE BASE

---

**DESIGNATION** WASTEWATER

---

**DRAWING NO.** STD-WW40C

---

**REV** 0

---

**DESCRIPTION** Initial Issue
**Flow**

**Date**

1: 3 CEMENT:SAND MORTAR WITH OF 1:30 TOWARDS THE CHANNEL

STEEL TROWEL FINISH AT A SLOPE 1 TO 3 COURSES OF CLASS B SOLID DEPTH IN EXCESS OF 3.0m & ARE TO MILD STEEL & PLASTIC ENCAPSULATED.

EN 13101, TYPE D, CLASS 1, GALVANISED MANHOLE STEPS TO COMPLY WITH IS RISER PIECES BEDDED ON M30 MORTAR ENGINEERING BRICKS SET IN M30 MORTAR 124 AND BS 7903 (ALL CLASS D400 COVERS SHALL COMPLY WITH IS EN 14396.

OF LESS THAN 3m. MANHOLE LADDERS STEPS ARE REQUIRED IN MANHOLES OF COVER LEVEL (2 No. Max.) MAY BE USED TO ACHIEVE CORRECT TOP MIN. FRAME DEPTH 100-150mm) MIN. OPE.

PIPE DIAMETER (mm) ROCKER PIPE LENGTH (mm)

150 TO 800 625

GREATER THAN 800 TO 750 1000

GREATER THAN 750 1250

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. IN-SITU MANHOLES TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3m AND 300mm OR MORE WHEN THE MANHOLE DEPTH EXCEEDS 3m.

3. STRUCTURAL DESIGN & REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLABS OF IN-SITU CONCRETE. C30/37 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 APPROVAL AND COMPLIANCE WITH IS 420.

4. MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.

5. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.

6. 200mm ALL AROUND x 100mm DEEP, C20/25 CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT LINK AROUND COVER IN GREEN AREAS.

7. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.

8. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206-2013.

9. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.

10. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.

11. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

12. IF DEPTH FROM GROUND TO PIPE SOFFIT EXCEEDS 6m, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.

13. THE INTERNAL MANHOLE DIMENSIONS SHOWN IN THE TABLE BELOW ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS AND FINISHED WITH A 1:3 SAND/CEMENT FINISH TO SUIT FLOW OF INLETS AND OUTLET.

**MINIMUM MANHOLE DIMENSION "D"**

<table>
<thead>
<tr>
<th>DIAMETER OF LARGEST PIPE IN MANHOLE (mm)</th>
<th>INTERNAL DIMENSION OF MANHOLE (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LESS THAN 375</td>
<td>1250</td>
</tr>
<tr>
<td>375 TO 480</td>
<td>1380</td>
</tr>
<tr>
<td>530 TO 750</td>
<td>1890</td>
</tr>
</tbody>
</table>

* SEwers GREATER THAN 450mm ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS. MANHOLE SIZE OF THESE CHAMBERS MAY BE REQUIRED FOR MULTIPLE PIPES WITHIN MANHOLE.
MANHOLE COVER AND FRAME SHALL COMPLY TO IS EN 124 AND BS 7933 (ALL CLASS D400 COVERS SHALL HAVE MIN. FRAME DEPTH 100-150mm MIN. OPE. 600x600mm or 600mm Ø).

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. IN-SITU MANHOLES TO HAVE A MINIMUM WALL AND FLOOR THICKNESS OF 225mm FOR MANHOLE DEPTHS UP TO 3.0m AND 300mm OR MORE WHEN THE MANHOLE DEPTH EXCEEDS 3.0m.
3. STRUCTURAL DESIGN & REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE C30/37 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 APPROVAL AND COMPLIANCE WITH IS 420.
4. MANHOLES GREATER THAN 3m IN DEPTH WILL REQUIRE A DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.
5. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
6. 200mm ALL AROUND x 100mm DEEP, C20/25 CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT SUPPORTED AT 1.0m MAX. CENTRES. MANHOLE ROOFS SHALL CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, C30/37, 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 APPROVAL AND COMPLIANCE WITH IS 420.
7. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOTATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
8. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206 : 2013.
9. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
10. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
11. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.
12. IF DEPTH FROM GROUND TO PIPE SOFFIT EXCEEDS 6m, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.
13. THE INTERNAL MANHOLE DIMENSIONS SHOWN IN THE TABLE BELOW ARE MINIMUM DIMENSIONS AND WILL INCREASE DEPENDING ON THE NUMBER AND DIAMETER OF ADDITIONAL INLETS.

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)

<table>
<thead>
<tr>
<th>PIPE DIAMETER (mm)</th>
<th>ROCKER PIPE LENGTH (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 TO 800</td>
<td>650</td>
</tr>
<tr>
<td>GREATER THAN 800 TO 750</td>
<td>1000</td>
</tr>
<tr>
<td>GREATER THAN 750</td>
<td>1250</td>
</tr>
</tbody>
</table>

MANHOLE SIZE OF THESE CHAMBERS MAY BE REQUIRED DUE TO MULTIPLE PIPES WITHIN MANHOLE.

* SEwers GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS. MANHOLE SIZE OF THESE CHAMBERS MAY BE REQUIRED DUE TO MULTIPLE PIPES WITHIN MANHOLE.

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WASTEWATER

CAST IN-SITU CONCRETE PUMPING STATION INLET MANHOLE.
45° BEND
150mm GRADE C25/30 CONCRETE SURROUND

90° BEND
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 900mm AND LESS THAN 1700mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 1300mm AND LESS THAN 2300mm
(SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS.)

REMOVABLE END CAP
(See Details Over)

150mm - 450mm DIA. (INCL.) DROP GREATER THAN 1700mm & LESS THAN 2300mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 2300mm & LESS THAN 3000mm

150mm GRADE C25/30 CONCRETE SURROUND

BENCHING CONC. GRADE C25/30 WITH A 1:3 SAND:CEMENT FINISH

1: 3 CEMENT:SAND MORTAR WITH STEEL TROWEL FINISH AT A 1:30 SLOPE TOWARDS THE CHANNEL

200mm WIDE x 150mm HIGH x 150mm DEEP SELF CLEANING STAGGERED TOE HOLE REBATES AT 300mm CENTRES TO BE PROVIDED WHERE CHANNEL EXCEEDS 600mm WIDE

TYPE No. 1
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 1700mm & LESS THAN 2300mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 2300mm & LESS THAN 3000mm

150mm GRADE C25/30 CONCRETE SURROUND

HEAVY DUTY COVER AND FRAME D400 (TO SUIT 150mm OPE.) TO IS 261 & B.S. 5834

NOTE:
PRECAST CONCRETE MANHOLES SHALL ONLY BE USED WHERE THE WATER TABLE IS LOW. THEY SHALL NOT BE USED WHERE THERE IS A PERCHED WATER TABLE, WHERE THE SEWER IS LOCATED NEXT TO A RIVER, LAKE OR OTHER WATER BODY AND WITHIN AREAS THAT ARE IDENTIFIED BY THE OFFICE OF PUBLIC WORKS CATCHMENT FLOOD RISK ASSESSMENT AND MANAGEMENT (CFRAM) WITH A FLOOD RISK OF 1 IN 10 YEARS.

PRECAST CONCRETE MANHOLE DETAILS TO BE IN ACCORDANCE WITH STD-WW-09, 10, 10A AND 11

4. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

5. MANHOLE DETAILS TO BE IN ACCORDANCE WITH STD-WW-09, 10, 10A AND 11

6. ALL BACKDROPS SHOULD TERMINATE AT THEIR LOWER END WITH A BEND INTO THE MAIN CHANNEL TO ENSURE THE DISCHARGE IS 45° OR LESS ON PLAN.

200mm ALL AROUND x 100mm DEEP, C25/30 CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT LINK AROUND COVERS IN GREEN AREAS.

HEAVY DUTY COVER AND FRAME D400 (TO SUIT 150mm OPE.) TO IS 261 & B.S. 5834

150mm GRADE C25/30 CONCRETE SURROUND

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF Y-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.

Y - JUNCTION

150mm GRADE C25/30 CONCRETE SURROUND

45° BEND

225mm GRADE C25/30 CONCRETE SURROUND

TYPE No. 2
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 800mm AND LESS THAN 1700mm
500mm - 900mm DIA. (INCL.) DROP GREATER THAN 1300mm AND LESS THAN 2300mm
(SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS.)

150mm GRADE C25/30 CONCRETE SURROUND

150mm DIA. PVC PIPE

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF T-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.

TEE JUNCTION

150mm GRADE C25/30 CONCRETE SURROUND

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF Y-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.

Y-JUNCTION

150mm GRADE C25/30 CONCRETE SURROUND

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF T-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.

TYPE No. 3
150mm - 450mm DIA. (INCL.) DROP GREATER THAN 600mm AND LESS THAN 900mm
(SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS.)

150mm GRADE C25/30 CONCRETE SURROUND

225mm GRADE C25/30 CONCRETE SURROUND

TYPE No. 4 CASCADE MANHOLE
150mm - 450mm DIA. (INCL.) DROP LESS THAN 600mm
500mm - 900mm DIA. (INCL.) DROP LESS THAN 600mm
(SEWERS GREATER THAN 450mm Ø ARE OUTSIDE THE SCOPE OF THE STANDARD DETAILS.)

150mm GRADE C25/30 CONCRETE SURROUND

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF Y-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.

150mm GRADE C25/30 CONCRETE SURROUND

150mm 90° PVC MULTI SADDLE FITTED TO TOP OF T-JUNCTION (IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS) USING A SUITABLE ADHESIVE TO ENSURE A WATER TIGHT SEAL.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. AN INSPECTION CHAMBER SHOULD BE LOCATED AT OR WITHIN 1m OF THE PROPERTY BOUNDARY AT THE UPSTREAM END OF EACH SERVICE CONNECTION ON THE PRIVATE SIDE OF THE CURTILAGE, IF PRACTICABLE. CONSULT WITH IRISH WATER ON ALTERNATIVE LOCATIONS.

3. SERVICE CONNECTION FROM PUBLIC SEWER TO PROPERTY BOUNDARY IS A PUBLIC ASSET. PIPE UPSTREAM OF THE PROPERTY BOUNDARY IS A PRIVATE DRAIN AND SHOULD BE CONSTRUCTED IN ACCORDANCE WITH THE BUILDING.

4. ACCESS POINTS SHOULD BE LOCATED SO THAT THEY ARE ACCESSIBLE AND APPARENT TO THE MAINTAINER AT ALL TIMES FOR USE. THEY SHOULD AVOID REAR GARDENS OR ENCLOSED LOCATIONS AND SHOULD NEVER BE OVERLAIN WITH SURFACE DRESSING, TOPSOIL, ETC.

5. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.

6. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.

7. PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER - SEE DETAIL BELOW.

8. CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 804 OR CLAUSE 808 MATERIAL AS PER STD-WW-07.

9. MINIMUM DEPTH FROM COVER LEVEL TO INVERT OF PIPE = 1.2m. INTERNAL DIMENSIONS GREATER THAN 600 x 600mm OR 600mm Ø REQUIRED WHERE DEPTH EXCEEDS 1.2m - CONSULT WITH IRISH WATER.

10. SMALLER INSPECTION CHAMBERS WITH INTERNAL DIMENSIONS OF 450mm Ø OR 450 X 450mm MAY BE PERMITTED SUBJECT TO APPROVAL BY IRISH WATER WHERE CONFINED PHYSICAL CONDITIONS EXIST.

11. PREFABRICATED UNITS SHOULD HAVE WATER TIGHT JOINTS AND SHOULD BE INTERLOCKING TO PREVENT LATERAL MOVEMENT OF INDIVIDUAL SECTIONS OF THE UNIT.
Refer to index sheet for notes regarding design responsibility & risk assessment.

### Thrust Blocks for Rising Mains

**Standard Details - Wastewater**

**Title:** Thrust Blocks for Rising Mains

**Drawing No.:** STD-WW-14

### Table of Dimensions for Steeply Inclined Pipelines

<table>
<thead>
<tr>
<th>Gradient</th>
<th>Spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 in 2 &amp; Steeper</td>
<td>5.5m</td>
</tr>
<tr>
<td>Below 1 in 2 to 1 in 4</td>
<td>11.5m</td>
</tr>
<tr>
<td>1 in 4 to 1 in 5</td>
<td>16.5m</td>
</tr>
<tr>
<td>1 in 5 to 1 in 6</td>
<td>22.5m</td>
</tr>
</tbody>
</table>

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**Pipe Support Details for Inclined Slopes:**
- For pipe gradient = 1:10 to horizontal. Supports placed at max. 5 m intervals, centre to centre along pipe where pipe is on slope. Min. 1 support required for pipe length > 5 meters in slope.
- All dimensions in millimetres (mm) unless noted otherwise.
- Concrete thrust blocks (anchorage) shall be positioned symmetrically with respect to the connecting pipe & bends.
- Trench dimensions: refer to drawing No's. STD-WW-07.
- Thrust blocks shall bear on undisturbed soil. If for any reason they cannot then the developer shall notify Irish Water immediately with a proposed solution.
- Thrust block reinforcement requires specific design.
- For test pressures greater than 18 bar, thrust block design is to be submitted to Irish Water for review.
- Thrust blocks are designed for an average bearing pressure of 100 KN/m (typical for soft clay) for other conditions, actual dimensions may be altered on instructions from Irish Water.
- Concrete in thrust blocks shall be grade C20 in accordance with IS EN 206.
- Compressible filler for concrete protection to be in accordance with BS EN 622-1 and BS EN 622-4. Bituminous material shall not be put in contact with plastic pipes. The thickness of compressible filler for mains < 450mm in diameter is 100mm.
- Concrete thrust blocks for polyethylene pipe to comply with the manufacturer’s requirements.
- Polyethylene pipes shall be wrapped in plastic sheeting having a composition in accordance with BS 6076 before being cast into concrete.

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**Standard Details - Stormwater**

**Title:** Standard Details - Stormwater

**Drawing No.:** STD-SW-14

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**Standard Details - Watermain Ground Surface Profile**

**Title:** Standard Details - Watermain Ground Surface Profile

**Drawing No.:** STD-WM-14

---

**Standard Details - Watermain Trench**

**Title:** Standard Details - Watermain Trench

**Drawing No.:** STD-TN-14

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**Standard Details - Watermain Slab**

**Title:** Standard Details - Watermain Slab

**Drawing No.:** STD-SB-14
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. VALVE SURFACE BOX TO BE IN ACCORDANCE WITH IS 261 OR BS 5834. SCOUR CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVER TO IS EN 124 RATING C250. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
3. SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 754 AND THEY SHALL HAVE THE APPROPRIATE CE MARKING.

4. SCOUR CHAMBER TO BE IN ACCORDANCE WITH IS EN 124.
5. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS. COVERS AND FRAMES TO BE OF REINFORCED CONCRETE SLAB OF sufficient concrete strength. GIRDERS CONSTRUCTED WITH MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED. SUBJECT TO IRISH WATER REVIEW & COMPLIANCE WITH BS 5911 Part 4.
6. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-WW-14 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
7. 200mm ALL AROUND 100mm DEEP. CONCRETE/CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL REINFORCEMENT LINK AROUND COVER TO COVER SURFACES IN GREEN AREAS.
8. ALL CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
9. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
10. ANTI CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.

11. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY’S REQUIREMENTS.
12. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY’S REQUIREMENTS.
13. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS.
14. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF “GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS” BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

15. SCOUR VALVE REQUIRED ONLY AT LOW POINTS FOR UNDULATING RISING MAINS.

16. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF “GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS” BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

17. ALL DUCTILE IRON PIPERINGS AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
18. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY’S REQUIREMENTS.

19. ALL DUCTILE IRON PIPERINGS AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
20. ALL DUCTILE IRON PIPERINGS AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
21. ALL DUCTILE IRON PIPERINGS AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.

22. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY’S REQUIREMENTS.
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 83. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONSIDERATIONS AND IS SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, Grade C30/37 with a minimum thickness of 150mm. ALTERNATIVELY, PRECAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, & COMPLIANCE WITH BS 5911, PART 4.
3. SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 771-3 SET IN M30 MORTAR.
4. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206:2013.
5. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
6. PE PIPES TO BE IN ACCORDANCE WITH IS EN 12201:2011.
7. 200mm & 250mm Ø & GREATER CONCRETE ANTI-TORQUE SUPPORTS (FOR VALVES)
8. Thrust blocks not shown on drawing to be provided as per standard drawing STD-WW-14 AT ALL TEES, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
9. CONCRETE ANTI-TORQUE SUPPORTS (FOR VALVES 250mm Ø & GREATER)
10. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY’S REQUIREMENTS.
11. ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
12. THRUST BLOCKS (NOT SHOWN ON DRAWING), TO BE PROVIDED AS PER STANDARD DRAWING STD-WW-14 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
13. ALL THRUST BLOCKS TO BE ADEQUATELY RESTRAINED BY THRUST BLOCKS AS PER DRAWING No. STD-WW-14. THRUST BLOCKS NOT SHOWN FOR CLARITY.
14. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
15. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
16. IN ACCORDANCE WITH IS EN 771-3 SET IN M30 MORTAR. THEY SHALL HAVE THE APPROPRIATE CE MARKINGS.
17. REFER TO STANDARD DETAILS - WASTEWATER (TO SUIT 445 x 280 OPE) FOR BEDDING AND BACKFILLING DETAILS.
18. REFER TO Std - W- 13 FOR BEDDING AND BACKFILLING DETAILS.
19. REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT.

**CONCRETE ROOF SLAB**

**DUCTILE IRON (D.I.) PIPE** (≤ 200mm DIA.)

**FLOOR PLAN**

**SLUICE VALVE CHAMBER**

**PRECAST CONCRETE CONSTRUCTION**

**FLOOR PLAN**

**SLUICE VALVE CHAMBER**

**BLOCKWORK CONSTRUCTION**

**DETAILS**

**STANDARD DETAILS - WASTEWATER**

**DRAWING No.**

**STD-WW-16**

**Sheet 1 of 2**
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. SLUICE VALVE CHAMBERS SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVERS TO IS 261 AND BS 5834. COVER AND FRAME SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS AND IS SUBJECT TO REVIEW BY IRISH WATER.
3. SLUICE VALVES SHALL BE DOUBLE FLANGED WITH DUCTILE IRON RESILIENT SEAL GATE VALVES, SUITABLE FOR USE IN RISING MAINS. THEY SHALL COMPLY WITH THE REQUIREMENTS OF IS EN 1074 AND THEY SHALL HAVE THE APPROPRIATE CE MARKINGS.
4. ALL SLUICE VALVES SHALL BE CLOCKWISE CLOSING
5. VALVE CHAMBER TO BE CONSTRUCTED OF PRECAST CONCRETE UNITS OR HIGH DENSITY BLOCKWORK. ALTERNATIVELY PROPRIETARY PREFABRICATED CHAMBER UNITS MAY ALSO BE USED, SUBJECT TO REVIEW BY IRISH WATER. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS & CONSIST OF A REINFORCED CONCRETE SLAB OF A SATISFACTORY GRADE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 150mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, AND SHALL BE DESIGNED TO CARRY LIVE LOADS AND DEAD LOADS.
6. CONCRETE CHAMBERS SHALL BE SURROUNDED BY A MINIMUM OF 150mm COMPACTED CLAUSE 808 MATERIAL AS PER STD-WW-07.
7. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
8. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
9. PE PIPES TO BE IN ACCORDANCE WITH IS EN 12201: 2011.
10. 200mm ALL AROUND X 100mm DEEP, C20/25 CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND TO BE PROVIDED COMPLETE WITH MILD STEEL IRON OR CONCAVE COVERED CEMENTITIOUS MORTAR.
11. POLYETHYLENE (P.E.) PIPE:
   - FUSION WELD
   - STUB FLANGE WITH BACKING RING
   - FLANGED SLUICE VALVE
   - CONCRETE ANTI-TORQUE SUPPORT (FOR VALVES 250mmØ & GREATER)
12. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
13. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
14. ANTI-CORROSION TAPE TO BE PROVIDED AROUND BURIED FLANGES.
15. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
16. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
17. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
18. REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm), UNLESS NOTED OTHERWISE.
2. VENTILATION STACK TO BE PROVIDED IN ODOUR SENSITIVE AREAS AND ODOUR TREATMENT UNIT MAY BE REQUIRED, DEPENDING ON LOCATION.

3. ISOLATING VALVE TO BE PROVIDED IN ACCORDANCE WITH IS EN 1074-2.
4. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.

5. DOUBLE AIR VALVE CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY VENTILATED METAL COVER TO IS EN 124 RATING D400.
6. CAST IN RECESSED LIFTING EYES TO BE PROVIDED AS PER STANDARD DRAWING STD-WW-14.

7. ALL EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS, AS DETRIMENTAL TO TRANSPORT, TRANSPORT INFRASTRUCTURE & REQUIREMENTS.

8. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, AND CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm. ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW AND A COMPLIANCE WITH IS 420 & ISEN 1917.

9. VENTILATION STACK TO BE PROVIDED IN ODOUR SENSITIVE AREAS AND ODOUR TREATMENT UNIT MAY BE REQUIRED DEPENDING ON LOCATION.

10. ISOLATING VALVE TO BE IN ACCORDANCE WITH IS EN 1074-2.

11. ALL DUCTILE IRON PIPE WORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.

12. ALL PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS 420 & ISEN 1917.

13. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED, THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.

14. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE SUBJECT TO ROAD AUTHORITY REQUIREMENTS.

15. PRE-CAST UNITS MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.

16. ANTI CORROSION TAPE TO BE PROVIDED AROUND ALL BURIED FLANGES.

17. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

18. ALL DUCTILE IRON PIPE WORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.

19. ALL PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201: 2011.

20. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED, THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.

21. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
3. DUCT ARRANGEMENT MAY VARY DECKING ON REQUIREMENTS.
4. CABLE DUCTS TO BE IN ACCORDANCE WITH IS EN 61386-24. DUCTS FOR ESB USE TO BE IN ACCORDANCE WITH ESB SPECIFICATION ESBN 16113 AND IS 370 COLOUR CODE.
5. PROPRIETARY DUCT CHAMBER MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.
6. LONG RADIUS BENDS MAY BE USED FOR CHANGES IN DIRECTION OF UP TO 45° DUCT CHAMBERS SHALL BE PROVIDED FOR ALL BENDS GREATER THAN 45°.
7. DUCT CHAMBERS TO BE LOCATED AT 5m INTERVALS MAXIMUM.
8. APPROPRIATE MARKER TAPE TO BE USED FOR CHECKS IN DIRECTION OF UP TO 45° DUCT CHAMBERS TO BE IN ACCORDANCE WITH ESBN SPECIFICATION.
9. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULDN'T ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
10. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
11. ALL DUCTING TO BE INSTALLED WITH DRAW CORDS/ROPES TO ALLOW THE PULL THROUGH OF CABLES.
12. CABLE DUCT INTERFACE WITH CHAMBER WALL TO BE SEALED TO Prevent INGRESS OF GROUNDWATER TO CHAMBER.
13. DRAIN POINT TO BE PROVIDED FROM LOWEST LOCATED DUCT CHAMBER.

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT
1. All dimensions in millimetres unless noted otherwise.
2. Structural design & reinforcement details to be provided by the developer and submitted to Irish Water for review.
3. Pull final detail must be reviewed by Irish Water and relevant regulatory authorities.
4. All concrete to be in accordance with IS EN 206.
5. Backfill and reinstatement of the river bed and bank to be subject to agreement with relevant authority & Irish Water.
6. 25x25mm Chamfer to all exposed concrete corners.

**STANDARD DETAILS - WASTEWATER**

**SECTION**

150mm Grade C20/25 In-Situ Concrete Surround

Storm Water Manhole

Precast Concrete Manhole Rings to IS 420 in conjunction with IS EN 1917 - 2004

Duct & Flanged Plain Endless Pipe

Rocker Pipes to be provided

Duck Bill Check Valve

Precast Concrete Base Unit

Blinding Concrete

75mm Grade C12/15

Smooth Concrete finish at a 1:30 slope towards the channel

Storm Drain

**PLAN**

Cover & Frame (Class D400), in accordance with IS EN124 and BS7903

Pre-Cast Concrete Surround

Cementitious Epoxy Resin/Polyester Mortar 30N/mm²

Cover to be set in cementitious epoxy resin/polyester mortar 30N/mm²

Precast Concrete Base Unit

25x25mm Chamfer to all exposed concrete corners

1. MIN TO 3 MAX COURSES OF CLASS B SOLID ENGINEERING BLOCK SET IN M30 MORTAR TO ISEN 666

2. 1 MIN TO 3 MAX COURSES OF CLASS B SOLID ENGINEERING BLOCK SET IN M30 MORTAR TO ISEN 666

**REVIEW**

0 09/'15 Initial Issue

App Sl Drn Chk JMC TOC

1 11/'17 Notes revised JMC TOC

2 07/'20 RH TOC

**STANDARD DETAILS - WASTEWATER**

**EMERGENCY OVERFLOW STRUCTURE**

& **EMERGENCY OVERFLOW TO STORM SEWER**

**REFERENCES**

Refer to Index Sheet for Notes regarding Design Responsibility & Risk Assessment

**DRAWING DETAILS**

- Title: EMERGENCY OVERFLOW STRUCTURE & EMERGENCY OVERFLOW TO STORM SEWER
- Drawing No.: STD-WW-20
- Rev.: 2

**DATE:** SEPT. 2015

**SCALE:** NOT TO SCALE
1. All dimensions in millimetres (mm) unless noted otherwise.
2. O.D. refers to outside diameter of pipes or collars.
3. Two flexible joints shall be provided within a distance of 1000mm or 2x diameter of pipe (whichever is the greater) from both ends of concrete surround.
4. All ductile iron pipe work and fittings to be in accordance with IS EN 598.
5. All concrete to be in accordance with IS EN 206:2013.
6. All manholes to be located a minimum of 5000mm from the bank edge to allow for future access.
7. Backfill and reinstatement of the river bed and bank to be subject to agreement with relevant authority & Irish Water.
8. Pipe between manholes at ditch / stream crossing to be ductile iron.

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WASTEWATER

TYPICAL DITCH / STREAM CROSSING FOR GRAVITY SEWER

(Sheet 1 of 2)
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. O.D. REFERS TO OUTSIDE DIAMETER OF PIPES OR COLLARS.
3. BENDS AT RESPECTIVE CROSSINGS SHALL BE INDICATED ON THE LATERAL SECTION DRAWING.
4. PIPEWORK THROUGH CROSSING TO BE POLYETHYLENE & JOINED USING BUTT FUSION WELDING.
5. POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6076 BEFORE BEING CAST INTO CONCRETE.
6. THRUST BLOCKS TO BE PROVIDED AS PER STD-WW-14 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
7. ALL DUCTILE IRON PIPEWORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
8. ALL PE PIPEWORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.
9. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206:2013.
10. ALL MANHOLES TO BE LOCATED A MINIMUM OF 5000mm FROM THE BANK EDGE TO ALLOW FOR FUTURE ACCESS. MANHOLE LOCATIONS MUST BE REVIEWED BY IRELAND WATER & READILY ACCESSIBLE BY ALL OPERATION & MAINTENANCE EQUIPMENT, INCLUDING A VACUUM TANKER.
11. PIPEWORK OF RISING MAIN CAN BE EITHER DUCTILE IRON OR POLYETHYLENE. PIPEWORK AT CROSSING TO BE PE IN BOTH CASES.
12. BACKFILL AND REINSTATEMENT OF RIVER BED AND BANK TO BE SUBJECT TO AGREEMENT WITH RELEVANT REGULATORY AUTHORITIES & IRELAND WATER.

FOR AIR VALVE / CHAMBER DETAILS REFER TO STD-WW-18
AIR VALVE TO BE LOCATED BOTH SIDES OF CROSSING

FOR THRUST BLOCK DETAILS REFER TO STD-WW-14

FOR BENDS

DI / PE PIPE
SEE NOTE 11

DI / PE PIPE
SEE NOTE 11

FOR SCOUR VALVE / CHAMBER DETAILS REFER TO STD-WW-15

FOR SCOUR VALVE / CHAMBER DETAILS REFER TO STD-WW-15

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

TYPICAL DITCH / STREAM CROSSING
FOR RISING MAIN
(Sheet 2 of 2)
1. All dimensions in millimetres (mm) unless noted otherwise.
2. O.D. refers to outside diameter of pipes or collars.
3. Bends at respective crossings shall be indicated on the longitudinal section drawing.
4. Pipework through crossing to be polyethylene & joined using butt fusion welding.
5. Polyethylene pipes shall be wrapped in plastic sheeting having a composition in accordance with BS 6076 before being cast into concrete.
6. Thrust blocks to be provided as per STD-WW-14 at all tees, bends, tapers, dead ends and pipes at steep slopes.
7. All ductile iron pipe work and fittings to be in accordance with ISO 2531.
8. All PE pipe work and fittings to be in accordance with EN 12201:2011.
9. All concrete to be in accordance with IS EN 206:2013.
10. All manholes to be located a minimum of 5000mm from the bank edge to allow for future access. Manhole locations must be reviewed by Irish Water & readily accessible by all operation & maintenance equipment including a vacuum tanker.
11. Backfill and reinstatement of river bed and bank to be subject to agreement with relevant regulatory authorities & Irish Water.

Refer to note 3 for bends.

1. FOR AIR VALVE / CHAMBER DETAILS REFER TO STD-WW-18
2. AIR VALVE TO BE LOCATED BOTH SIDES OF CROSSING

Refer to note 5 for bends.

1. FOR SCOUR VALVE / CHAMBER DETAILS REFER TO STD-WW-15
2. SCOUR CHAMBER

Refer to index sheet for notes regarding design responsibility & risk assessment.

Typical ditch / stream crossing for polyethylene rising main

Standard details - wastewater

Sept. 2015

Refer to standard details - wastewater for polyethylene rising main

ough details - wastewater for polyethylene rising main
1. All dimensions in millimetres (mm) unless noted otherwise.
2. At bridge crossing ductile iron pipe work and fittings to be in accordance with BS EN 598.
3. O.D. refers to outside diameter of pipes or collars.
4. Bends at respective crossings shall be indicated on the longitudinal section drawing.
5. The developer is to seek advice from Irish Water as to whether a duplicate rising main is to be provided through the bridge crossing. If necessary, the developer will submit a design to Irish Water for review.
6. Throat blocks to be provided as per Std WW-14 at all tees, bends, tapers, dead ends and pipes at steep slopes.
7. The quality of the kiosk construction shall ensure that the following is achieved:
   a) A thermal transmittance of 1.5 W/m²·K.
   b) A fire resistance (retention of stability, integrity and insulation) equivalent to class 2 of BS 476, when tested in accordance with BS 476 for a period exceeding 30 minutes.
8. Kiosk, BRIDGE CROSSING, All ductile iron pipe work and fittings to be in accordance with BS EN 598.
9. Kiosk shall be located off the footpath so as not to impede pedestrians and positioned so as to facilitate safe access for maintenance personnel.
10. Kiosk to be fitted with a vent stack to manufacturers detail in sensitive areas.
11. All concrete to be in accordance with BS EN 206.
12. In insensitive areas a vent stack is not required. Louvre vent to be provided in kiosk.
13. Detail for rising main for PE pipe work to be as per this detail. Bridge crossing pipe work to be ductile iron in both cases.
14. The location of the scour chamber must be reviewed by Irish Water and readily accessible by all operation & maintenance equipment, including a vacuum tanker.

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**Standard Details - Wastewater**

**Typical Bridge Crossing for Rising Main**

(Sheet 1 of 2)

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1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. O.D. REFERS TO OUTSIDE DIAMETER OF PIPES OR COLLARS.
3. BENDS AT RESPECTIVE CROSSINGS SHALL BE INDICATED ON THE LONGITUDINAL SECTION DRAWING.
4. PIPEWORK THROUGH CROSSING TO BE POLYETHYLENE & JOINED USING BUTT FUSION WELDING.
5. POLYETHYLENE PIPES SHALL BE WRAPPED IN PLASTIC SHEETING HAVING A COMPOSITION IN ACCORDANCE WITH BS 6076 BEFORE BEING CAST INTO CONCRETE.
6. THRUST BLOCKS TO BE PROVIDED AS PER STD-WW-14 AT ALL TEES, BENDS, TAPERS, DEAD ENDS AND PIPES AT STEEP SLOPES.
7. ALL DUCTILE IRON PIPEWORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
8. ALL PE PIPEWORK AND FITTINGS TO BE IN ACCORDANCE WITH BS EN 12201-2011.
9. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206-2013.
10. ALL MANHOLES TO BE LOCATED A MINIMUM OF 3000mm FROM THE BANK EDGE TO ALLOW FOR FUTURE ACCESS.
11. BACKFILL AND REINSTATEMENT REQUIREMENTS OF THE RIVER BED AND BANK IS SUBJECT TO AGREEMENT WITH RELEVANT REGULATORY AUTHORITIES & IRISH WATER.
12. THE DEVELOPER IS TO SEEK ADVICE FROM IRISH WATER AS TO WHETHER A DUPLICATE RISING MAIN IS TO BE PROVIDED THROUGH THE BRIDGE CROSSING. IF NECESSARY THE DEVELOPER WILL SUBMIT A DESIGN TO IRISH WATER FOR REVIEW.
13. PIPEWORK OF RISING MAIN CAN BE EITHER DUCTILE IRON OR POLYETHYLENE. PIPE AT CROSSING POINT TO BE PE IN BOTH CASES.
14. THE LOCATION OF THE SCOUR CHAMBER MUST BE REVIEWED BY IRISH WATER & READILY ACCESSIBLE BY ALL OPERATION & MAINTENANCE EQUIPMENT, INCLUDING A VACUUM TANKER.

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

STANDARD DETAILS - WASTEWATER

TYPICAL
BRIDGE CROSSING FOR RISING MAIN
(Sheet 2 of 2)
1. All dimensions in millimetres (mm) unless noted otherwise.
2. O.D. refers to outside diameter of pipes or collars.
3. Bends at respective crossings shall be indicated on the longitudinal section drawing.
4. Pipe work at crossing point to be ductile iron to IS EN 598.
5. Thrust blocks to be provided as per STD-WW-14 at all tees, bends, tapers, dead ends and pipes at steep slopes.
6. The developer is to seek advice from Irish Water as to whether a duplicate main is to be provided at the crossing. If necessary the developer is to submit a design to Irish Water for review.
7. All concrete to be in accordance with IS EN 291.
8. All ductile iron pipe work to be in accordance with IS EN 598. All polyethylene pipe work to be in accordance with IS EN 12201.
9. The quality of the kiosk construction shall ensure that the following is achieved:
   a) A thermal transmittance of 1.5 W/m²K.
   b) A fire resistance (retention of stability, integrity and insulation) equivalent to Class 2 of BS 476 when tested in accordance with BS 476 for a period exceeding 30 minutes.
10. Kiosk (min. 800 x 600 x 300 mm deep) to be constructed from thermosetting U.V. & weather resistant plastic powder coated & hot dipped galvanized steel (min. 3 mm thickness) to BS EN 61. Stainless steel may be used as an alternative kiosk material, particularly in severe environments, subject to agreement with Irish Water. Colour to be Holly Green BS 4800 C 39, to have hinged, lockable access door (hinges and locks to be stainless steel).
11. The kiosk shall be located off the footpath so as not to impede pedestrians and positioned so as to facilitate safe access for maintenance personnel.
12. Air valve tapping to be located at highest point of crossing.

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**TYPICAL CULVERT & SERVICES CROSSING DETAILS FOR RISING MAIN**

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**Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment**

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**STANDARD DETAILS - WASTEWATER**

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**DRAWING No. STD-WW-24A**

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**TITLE**

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**DATE**

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**SCALE**

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**NOT TO SCALE**

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**SEPT. 2015**

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**UISCÉ EIREANN : IRISH WATER**

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**INITIAL ISSUE**

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**DRAWING No.**

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**NOTE**

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**DESCRIPTION**

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**PAGE**

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1. All dimensions in millimetres (mm) unless noted otherwise.

2. Security fencing shall comprise 2.4m high, corrosion resistant mild steel palisades, galvanised and plastic coated finished, with similar type access gates.

3. The access gates shall be of sufficient width to accommodate maintenance vehicles, takers, etc. The security gates shall be provided with slide bolts, shooting bolts and padlocks. If opening outwards, the access gates shall be set back from parking and access areas by the width of the leaf of the gate.

4. Bolts - unless tamper resistant fixings are used, all bolts to the access gates & fencing shall be buried over.

5. Gate prizes shall be designed so that it is impossible to remove the gate by lifting when in a closed & locked position. Drop bolts shall be fitted to each gate leaf in such a way that they cannot be removed but allow the gate to be secured in both the open position, and before manufacture.

6. The security rating shall be either basic + enhanced or enhanced +. The fence standard will be based on the security rating of the site & is to be agreed with Irish Water.

7. Corner bracing and post details to manufacturer's specification.

8. All concrete to be in accordance with IS EN 206.

9. All fence materials and workmanship to be in accordance with IS EN 1722-12:2006.

10. Dimensions of gate pillars, gate frame, fence pillars, fence runners, diagonal, etc, to be to manufacturer's specification.

11. Fence design and details to be provided to Irish Water for review before manufacture.

12. Pedestrian gate shall be provided if deemed necessary by Irish Water.

13. Colour to be holly green 14 C 39 in accordance with BS 4800:2011.

14. A 300mm wide x 150mm deep concrete sill (if required by Irish Water) Grade C20/25 concrete shall be provided to Irish Water's requirements (enhanced + security rating only).

15. The gates shall have the following security features:
   a. Gate locking mechanism shall include a hinged cover protecting the padlock from attack and the slotted bolt shall be of high carbon steel - technical specification to be included in the design submission for review / vetting before manufacture.
   b. Drop bolts shall be fitted to each gate leaf in such a way that they cannot be removed but allow the gate to be secured in both the open position, and using one of the drop bolts to lock in a closed position.
   c. Drop bolts shall be a minimum of 650mm in length with 50mm contained in a steel retainer imbedded in concrete, protecting against forced attack of the gate.
   d. The design shall include a metal stay attached to the leaf 2 to prevent the drop bolt 1 from being activated on leaf 1 while the gate is in a locked position and to ensure that the gate cannot be locked by an operator unless a drop bolt is engaged in a receiver.
   e. A crash plate shall be installed on leaf 1 to prevent leaf 2 from swinging passed the close point of the gate. The crash plate shall in addition be installed such that it provides restricted access to the slide bolt, impeding attempts of cutting of same.
   f. Brackets attaching fence panels to fence post to be constructed of 5mm steel, with tamper-proof connections.

2.4m high x 217 No. GALVANISED AND POWDER POLYESTER COATED (COLOUR TO BE HOLLY GREEN 14 C 39.) CORNER BRACING AND POST DETAIL TO MANUFACTURER'S SPECIFICATION.

FILED WELDED PALES, GALVANISED & POWDER POLYESTER COATED FINISHES, WITH SIMILAR TYPE ACCESS GATES.

REVIEW DRAWING SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT

REF: TOC 07/20

M O

DRAWING No.

STD-WW-25 0

DATE SEPT. 2019

SCALE NOT TO SCALE

STANDARD DETAILS - WASTEWATER

SECURITY GATE AND FENCING

PALISADE OPTION (PREFERRED)
1. ALL DIMENSIONS IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. SECURITY FENCING SHALL COMPREHEND 2.4m HIGH, CORROSION RESISTANT MILD STEEL FENCING, GALVANISED AND PLASTIC COATED FINISHED, WITH SIMILAR TYPE ACCESS GATES.
3. THE ACCESS GATES SHALL BE OF SUFFICIENT WIDTH TO ACCOMMODATE MAINTENANCE VEHICLES, TANKERS, ETC. THE SECURITY GATES SHALL BE PROVIDED WITH SLIDE BOLTS, DROP BOLTS AND POLYCLIPS. IF OPENING OUTWARDS, THE ACCESS GATES SHALL BE SET BACK FROM PARKING AND ACCESS AREAS BY THE WIDTH OF THE LEAF OF THE GATE.
4. BOLTS - UNLESS TAMPER RESISTANT FIXINGS ARE USED, ALL BOLTS TO THE ACCESS GATES & FENCING SHALL BE REMOVED.
5. GATE WIRING SHALL BE DESIGNED SO THAT IT IS IMPOSSIBLE TO REMOVE THE GATE BY LIFTING WHEN IT IS IN A CLOSED & LOCKED POSITION. DROP BOLTS SHALL BE FITTED TO EACH GATE LEAF IN SUCH A WAY THAT THEY CANNOT BE REMOVED BUT ALLOW THE GATE TO BE SECURED IN BOTH THE OPEN & CLOSED POSITION.
6. THE SECURITY RATING SHALL BE EITHER BASIC +, ENHANCED OR ENHANCED +. THE FENCE STANDARD WILL BE BASED ON THE SECURITY RATING OF THE SITE & IS TO BE AGREED WITH IRISH WATER.
7. CORNER-BRACING AND POST DETAIL TO MANUFACTURER’S SPECIFICATION.
8. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
9. ALL FENCE MATERIALS AND WORKMANSHIP TO BE IN ACCORDANCE WITH IS EN 1722-14-2006.
10. DIMENSIONS OF GATE PILLARS, GATE FRAME, FENCE PILLARS, FENCE RUNNERS, DIAGONALS, ETC. TO BE TO MANUFACTURER’S SPECIFICATION.
11. FENCE/Gate design and details to be provided to Irish Water for review/vetting before manufacture.
12. Pedestrian Gate shall be provided if deemed necessary by Irish Water.
13. Colour to be Holly Green 14 C 39 in accordance with BS 4800:2011.
14. A 300mm wide x 150mm deep concrete sill (if required by Irish Water) grade C25/30 concrete shall be provided to Irish Water’s requirements (enhanced + security rating only).
15. The gates shall have the following security features:
   a. Gate locking mechanism shall include a shroud/cover protecting the padlock from attack and the slip bolt shall be of high carbon steel - technical specification to be included in the tender submission for review/vetting before manufacture.
   b. Drop bolts shall be fitted to each gate leaf in such a way that they cannot be removed but allow the gate to be secured in both the open and position, and using one of the drop bolts to lock in a locked position.
   c. Gate will be a minimum of 650mm in length with 50mm contained in a steel retainer imbedded in concrete, protecting against forced attack of the gate.
   d. The design shall include a metal stay attached to the leaf 200mm from the opening side of the leaf, 50mm in length with 50mm contained in a steel retainer imbedded in concrete, protecting against forced attack of the gate.
   e. Gate to comply with BS EN 1722-14-2006.
   f. Bracket attaching fence panels to fence post to be constructed of 5mm steel with tamper-proof connections.

Security gate and fencing wire mesh option

Refer to index sheet for notes regarding design responsibility & risk assessment

Refer to standard details - wastewater

Title: SECURITY GATE AND FENCING WIRE MESH OPTION

Stanadard Details - Wastewater

Table:

<table>
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<th>DRAWING No.</th>
<th>Scale</th>
<th>Date</th>
<th>Rev.</th>
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<tr>
<td>STD-WW-25A</td>
<td>3</td>
<td>SEPTE 2015</td>
<td>3</td>
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1. All dimensions in millimetres (mm) unless noted otherwise.
2. Security fencing shall comprise 2.4m high, corrosion resistant mild steel fencing, galvanised and plastic coated finished, with similar type access gates.
3. The access gates shall be of sufficient width to accommodate maintenance vehicles, tankers, etc. The security gates shall be provided with slide bolts, dropping bolts and polyclips. If opening outwards, the access gates shall be set back from parking and access areas by the width of the leaf of the gate.
4. Bolts - unless tamper resistant fixings are used, all bolts to the access gates & fencing shall be removed.
5. Gate wiring shall be designed so that it is impossible to remove the gate by lifting when it is in a closed & locked position. Drop bolts shall be fitted to each gate leaf in such a way that they cannot be removed but allow the gate to be secured in both the open & closed position.
6. The security rating shall be either basic +, enhanced or enhanced +. The fence standard will be based on the security rating of the site & is to be agreed with Irish Water.
7. Corner-bracing and post detail to manufacturer’s specification.
8. All concrete to be in accordance with IS EN 206.
9. All fence materials and workmanship to be in accordance with IS EN 1722-14-2006.
10. Dimensions of gate pillars, gate frame, fence pillars, fence runners, diagonals, etc. to be to manufacturer’s specification.
11. Fence/Gate design and details to be provided to Irish Water for review/vetting before manufacture.
12. Pedestrian gate shall be provided if deemed necessary by Irish Water.
13. Colour to be Holly Green 14C 39 in accordance with BS 4800:2011.
14. A 300mm wide x 150mm deep concrete sill (if required by Irish Water) grade C25/30 concrete shall be provided to Irish Water’s requirements (enhanced + security rating only)
15. The gates shall have the following security features:
   a. Gate locking mechanism shall include a shroud/cover protecting the padlock from attack and the slip bolt shall be of high carbon steel - technical specification to be included in the tender submission for review/vetting before manufacture.
   b. Drop bolts shall be fitted to each gate leaf in such a way that they cannot be removed but allow the gate to be secured in both the open position, and using one of the drop bolts to lock in a closed position.
   c. Drop bolts shall be a minimum of 650mm in length with 50mm contained in a steel retainer imbedded in concrete, protecting against forced attack of the gate.
   d. The design shall include a metal stay attached to the leaf 200mm from the opening side of the leaf, 50mm in length with 50mm contained in a steel retainer imbedded in concrete, protecting against forced attack of the gate.
   e. Gate to comply with BS EN 1722-14-2006.
   f. Bracket attaching fence panels to fence post to be constructed of 5mm steel with tamper-proof connections.
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Type 1 pumping stations to be located no closer than 5.0 metres to a property boundary.
3. Type 2 pumping stations to be located no closer than 10.0 metres to a property boundary.
4. Type 3 pumping stations to be located no closer than 15.0 metres to a property boundary.
5. There shall be a clear opening in front of the site to ensure adequate access.
6. This detail is indicative only and the developer shall submit a site specific layout to Irish Water for review including dimensions from adjacent properties.
8. Fence and gate to STD-WW-25 or STD-WW-25A if fencing is required.
9. Refer to STD-WW-32 for permeable, impermeable roadway and hardstanding area detail.
10. Indicative layout relates to small pumping stations as per Type 1, Type 2 & Type 3 in the Irish Water Code of Practice for Wastewater Infrastructure.
11. Lamp standard & lamp bollard locations to be site specific, details to be provided to IW for review and agreement. Refer to STD-WW-33 for details.

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Type 1 pumping stations to be located no closer than 5.0 metres to a property boundary.
3. Type 2 pumping stations to be located no closer than 10.0 metres to a property boundary.
4. Type 3 pumping stations to be located no closer than 15.0 metres to a property boundary.
5. There shall be a clear opening in front of the site to ensure adequate access.
6. This detail is indicative only and the developer shall submit a site specific layout to Irish Water for review including dimensions from adjacent properties.
8. Fence and gate to STD-WW-25 or STD-WW-25A if fencing is required.
9. Refer to STD-WW-32 for permeable, impermeable roadway and hardstanding area detail.
10. Indicative layout relates to small pumping stations as per Type 1, Type 2 & Type 3 in the Irish Water Code of Practice for Wastewater Infrastructure.
11. Lamp standard & lamp bollard locations to be site specific, details to be provided to IW for review and agreement. Refer to STD-WW-33 for details.

Refer to Index Sheet for notes regarding design responsibility & risk assessment.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, & CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225mm.
3. METER CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVER TO IS EN 134 RATING D400. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
4. 200mm ALL AROUND, 150mm DEEP CONCRETE PUNCHY AROUND COVERS IN GREEN AREAS.
5. PRECAST UNITS COMPLIED WITH RUBBER SEALING GASKET BETWEEN UNITS. COMPLYING WITH THE REQUIREMENTS OF IS EN 598. PE PIPES AND FITTINGS MAY BE USED SUBJECT TO IRISH WATER REVIEW.
6. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 877.
7. ANY EPXY DETAILS TO BE PROVIDED AROUND ALL BURIED FLANGES.
8. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOUL UPLIFT MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
9. FLOW METERS REQUIRE A MINIMUM LENGTH OF PIPE ON EACH SIDE OF THE VALVE TO BE COMpletely FREE OF FITTINGS, VALVES, REDUCER ETC., AS PER THE MANUFACTURERS INSTRUCTIONS.
10. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
11. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.
12. CAST IN-SITU CONCRETE OPTION

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FLOW METER SPOOL PIECE LENGTHS

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<th>Ø mm</th>
<th>DN80</th>
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FLOW METER CHAMBER

(FOUL RISING MAIN ≤200mm DIA.)

CAST IN-SITU CONCRETE OPTION
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Structural design and reinforcement details shall be provided by the developer and submitted to Irish Water for review. Roof slabs shall be designed to carry live loads and dead loads, and consist of a reinforced concrete slab of in-situ concrete. Grade C30/37, with a minimum thickness of 225mm. Alternatively, pre-cast concrete roofs may be used. Subject to Irish Water review, & compliance with IS420 & IS1917.
3. Meter chamber shall be covered with approved heavy duty metal cover to IS EN 124 rating D400. Covers and frames shall be suitable for road and traffic conditions subject to review by Irish Water.
4. 200mm all around, 1000mm deep concrete plinth around covers in green areas.
5. Precast units completed with rubber sealing gasket between units, complying with the requirements of IS EN 124 and IS 420. Complete with 100mm concrete surround may be used as an acceptable alternative. Concrete surround to be grade C30/37 in accordance with IS EN 124. (Refer to STD-WW-27B & STD-WW-27C). Developer shall provide details to Irish Water for review.
6. Dusttite iron pipes and fittings to be in accordance with IS EN 598. PE pipes and fittings to be in accordance with IS EN 12201:2011.
7. Anti-corrosion tape to be provided around all buried flanges.
8. All chambers to be checked for uplift by the developer based on ground conditions within the site. Should anti-floatation measures be required they shall be subject to review by Irish Water.
9. Flow meters require a minimum length of pipe on each side of the valve to be completely free of fittings, valves, reducers, etc. as per the manufacturers instructions.
10. All Concrete to be in accordance with IS EN 206.
11. Any special road reinstatement around cover & frame shall be to road authority’s requirements.
12. NFIP road construction, a sufficient width to be to road authority’s requirements, for NFIP road reinstatement (it may be required) to comply with current version of guidelines for managing openings in public roads by the Dept of Transport, Tourism & Sport, or Transport Infrastructure (IE) requirements.
13. 200mm all around x 1000mm deep. C20/25 concrete plinth complete with bull nose finish and mild steel reinforcement link around covers in green areas.

**Flow Meter Spool Piece Lengths**

<table>
<thead>
<tr>
<th>DN (mm)</th>
<th>DN80</th>
<th>DN100</th>
<th>DN125</th>
<th>DN150</th>
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<td>200</td>
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<td>300</td>
<td>350</td>
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<td>450</td>
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</tbody>
</table>

**Standard Details - Wastewater**

**Flow Meter & Valve Chamber**

- (Foul Rising Main ≤200mm Dia.)
- Cast In-Situ Concrete Option

**Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment**
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, AND CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37. PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IRISH WATER REVIEW, DEVELOPER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH I.S.420 & I.S.1917 IN RESPECT ALL PRECAST UNITS.

3. METER CHAMBER SHALL BE COVERED WITH APPROVED HEAVY DUTY METAL COVER TO IS EN 124 RATING D400. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.

4. 200mm ALL AROUND x 100mm DEEP CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND MILD STEEL REINFORCEMENT LINK AROUND COVERS IN GREEN AREAS.

5. PRECAST UNITS COMPLETED WITH RUBBER SEALING GASKET BETWEEN UNITS, COMPLYING WITH THE REQUIREMENTS OF IS EN 1917 AND IS 430, COMPLETE WITH 150mm CONCRETE SURROUND MAY BE USED AS AN ACCEPTABLE ALTERNATIVE. CONCRETE SURROUND TO BE GRADE C20/25 IN ACCORDANCE WITH IS EN 206.

6. DUCTILE IRON PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598. PE PIPES AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 12201:2011.

7. ANTI CORROSION TAPE TO BE PROVIDED AROUND ALL BURIED FLANGES.

8. FLOW METERS REQUIRE A MINIMUM LENGTH OF PIPE ON EACH SIDE OF THE VALVE TO BE COMPLETELY FREE OF FITTINGS, VALVES, REDUCER ETC. AS PER THE MANUFACTURERS INSTRUCTIONS.

9. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

10. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.

11. NEW ROAD CONSTRUCTION & SURFACE FINISH TO BE TO ROAD AUTHORITY REQUIREMENTS. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS" BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE IRELAND REQUIREMENTS.

12. 200mm ALL AROUND x 100mm DEEP CONCRETE PLINTH COMPLETE WITH BULL NOSE FINISH AND MILD STEEL REINFORCEMENT LINK AROUND COVERS IN GREEN AREAS.

13. REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT.
PRECAST CONCRETE MANHOLE RINGS TO BS 420 IN CONJUNCTION WITH IS EN 1917:2004
PE TO DI DETAIL
FLOW METER SPOIL PIECE LENGTHS

<table>
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<tr>
<th>Ø mm</th>
<th>DN50</th>
<th>DN100</th>
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FLOW METER & VALVE CHAMBER
(Foul Rising Main ≤200mm Dia.)
PRECAST CONCRETE OPTION

1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Structural design and reinforcement details shall be provided by the developer and submitted to Irish Water for review. Roof slabs shall be designed to carry all live loads & dead loads, & consist of a reinforced concrete slab of in-situ concrete, grade C30/37, with a minimum thickness of 225mm. Alternatively, pre-cast concrete roofs may be used, subject to Irish Water review. Developer shall submit a certificate of compliance in accordance with IS 420 & IS 1917 in respect of all pre-cast units.
3. Meter chamber shall be covered with approved heavy duty metal cover to IS EN 124rating D400. Covers and frames shall be suitable for road and traffic conditions subject to review by Irish Water.
4. 200mm all around, 100mm deep concrete plinth around covers in green areas.
5. Precast units completed with rubber sealing gasket between units, complying with the requirements of IS 420 and IS 420, complete with 150mm concrete surround may be used as an acceptable alternative. Concrete surround to be grade C20/25 in accordance with IS EN 206.
6. Ductile iron pipes and fittings to be in accordance with IS EN 598. PE pipes and fittings to be in accordance with IS EN 12201:2011.
7. Anti corrosion tape to be provided around all buried flanges.
8. All chambers to be checked for uplift by the developer based on ground conditions within the site. Should anti flotation measures be required they shall be subject to review by Irish Water.
9. Flow meters require a minimum length of pipe on each side of the valve to be completely free of fittings, valves, reducer etc. as per the manufacturers instructions.
10. All concrete to be in accordance with IS EN 206.
11. Any special road reinstatement around cover & frame shall be to road authority's requirements.
12. New road construction & surface finish to be to road authority requirements. Existing road reinstatement to comply with current version of "Guidelines for managing openings in public roads" by the Dept. of Transport, Tourism & Sport, or Transport Infrastructure Ireland requirements.
13. 200mm all around x 100mm deep, C20/25 concrete plinth complete with bull nose finish and mild steel reinforcement link around covers in green areas.

<table>
<thead>
<tr>
<th>METER DIAMETER</th>
<th>&quot;A&quot; (mm)</th>
<th>INTERNAL CHAMBER DIAMETER</th>
<th>COVER DIMENSIONS</th>
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<tr>
<td>80-150</td>
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<td>750 x 750</td>
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<td>200</td>
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Refer to index sheet for notes regarding design responsibility & risk assessment.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PUMPS SHALL BE INSTALLED TO IRISH WATER REQUIREMENTS. REFER TO PART 5 OF THE CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.
3. ALL DUCTILE IRON PIPE WORK AND FITTINGS TO BE IN ACCORDANCE WITH BS IN 1992-3. EUROCODE 2 - DESIGN OF CONCRETE STRUCTURES - PART 3: LIQUID RETAINING AND CONTAINMENT STRUCTURES, TIGHTNESS CLASS 2
4. PRE-CAST CONCRETE CHAMBERS MAY BE USED SUBJECT TO REVIEW BY IRISH WATER. REFER TO DRG. NO. WW-28A FOR DETAILS.
5. ALL GATE VALVES TO BE CLOCKWISE CLOSING.
6. WET WELL TO BE IN ACCORDANCE WITH BS EN 12425.
7. COVERS TO BE SIZED TO ALLOW SPACE FOR PUMP REMOVAL MINIMUM 1400 x 800mm.
8. CHAMBER ACCESS COVERS WITH A CLEAR OPENING EXCEEDING 1m SHALL CONFORM TO BS 924.
9. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IW FOR REVIEW. WALL THICKNESS AND REINFORCEMENT SHALL BE SELECTED BASED ON SPECIFIC DESIGN. ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE LOADS & DEAD LOADS, CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37.

10. THE PUMPING STATION SHOULD NOT BE LOCATED IN AREAS THAT ARE SUSCEPTIBLE TO FLOODING AT MORE THAN A 1:100 YEAR RECURRENCE. THE PUMPING STATION FACILITY SHALL BE DESIGNED FOR INUNDATION. THE FINISHED SLAB LEVEL SHALL BE POSITIONED ABOVE THE 1:100 YEAR FLOOD LEVEL.
11. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER. DEVELOPER SHALL SUBMIT SITE SPECIFIC ANTI FLOATATION CALCULATIONS AND MEASURES PROPOSED IN RESPECT OF PUMP STATION STRUCTURES, AND TO TAKE INTO ACCOUNT CONDITIONS DURING CONSTRUCTION.
12. ALL CONCRETE TO BE IN ACCORDANCE WITH BS EN 206.
13. THIS DRAWING IS INDICATIVE ONLY AND THE DEVELOPER SHALL SUBMIT A SITE SPECIFIC LAYOUT TO IRISH WATER FOR REVIEW.
14. VENTILATION STACK TO BE PROVIDED IN SENSITIVE AREAS.
15. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED AT THE PUMP STATION IN ACCORDANCE WITH CLAUSE 5.11 OF THE CODE OF PRACTICE.
16. EMERGENCY OVERFLOW SHALL ONLY BE PROVIDED TO APPROVAL FROM THE RELEVANT REGULATORY AUTHORITIES. THE DEVELOPER SHALL PROVIDE THE REQUISITE CONSENTS FROM THE RELEVANT AUTHORITIES IN THE DESIGN SUBMISSION.
17. SURGE EQUIPMENT TO BE PROVIDED IF DEEMED NECESSARY.
18. INDICATIVE LAYOUT RELATES TO SMALL PUMPING STATIONS AS PER TYPE 1, TYPE 2 & TYPE 3 IN THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.
1. **ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.**

2. **PUMPS SHALL BE INSTALLED TO IRISH WATER REQUIREMENTS. REFER TO PART 5 OF THE CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**

3. **ALL DUCTILE IRON PIPE WORK AND FITTINGS TO BE IN ACCORDANCE WITH IS EN 598.**

4. **PRE-CAST CONCRETE CHAMBERS MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.**

5. **ALL GATE VALVES TO BE CLOCKWISE CLOSING.**

6. **THE COMPOSITE WET WELL STRUCTURE COMPRISING PRECAST CONCRETE MANHOLE UNITS AND STRUCTURAL CONCRETE SURROUND SHALL BE DESIGNED IN ACCORDANCE WITH IS EN 1992-3 - EUROCODE 2 - DESIGN OF CONCRETE STRUCTURES - PART 3: LIQUID RETAINING AND CONTAINMENT STRUCTURES TIGHTNESS CLASS 2**

7. **COVERS TO BE USED TO ALLOW ADEQUATE SPACE FOR PUMP REMOVAL. MINIMUM 1400 x 800mm.**

8. **EMERGENCY WASTEWATER BALANCE STORAGE CAPACITY SHALL BE PROVIDED AT THE PUMP STATION IN ACCORDANCE WITH CLAUSE 5.11 OF THE CODE OF PRACTICE.**

9. **ALL CONCRETE TO BE IN ACCORDANCE WITH IS 206.**

10. **WHERE CHAMBERS ARE TO BE PLACED IN AREAS THAT ARE SUSCEPTIBLE TO FLOODING AT MORE THAN A 1:30 YEAR RECURRENCE. THE PUMPING STATION FACILITY SHALL BE DESIGNED FOR INUNDATION. THE FINISHED SLAB LEVEL SHALL BE POSITIONED ABOVE THE 1:100 YEAR FLOOD LEVEL. ALL ELECTRICAL CONTROL EQUIPMENT SHALL BE IP RATED AND POSITIONED ABOVE 1:300 YEAR FLOOD LEVEL. THE DEVELOPER SHALL SUBMIT NECESSARY FLOOD RISK DOCUMENTATION IN RESPECT OF THESE ISSUES.**

11. **ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER. THE DEVELOPER SHALL SUBMIT SITE SPECIFIC ANTI-FLOATATION CALCULATIONS AND MEASURES PROPOSED IN RESPECT OF PUMP STATION STRUCTURES, AND TO TAKE INTO ACCOUNT CONDITIONS DURING ON SITE TESTING OF STRUCTURES.**

12. **ALL CONCRETE TO BE IN ACCORDANCE WITH IS 206.**

13. **CLEAR OPENING EXCEEDING 1m SHALL CONFORM TO BS 9124.**

14. **EMERGENCY OVERFLOW SHALL ONLY BE PROVIDED SUBJECT TO APPROVAL FROM IRISH WATER. THE DEVELOPER SHALL PROVIDE THE RELEVANT AUTORITIES.**

15. **STAINLESS STEEL OVERFLOW MAY BE USED FOR SENSITIVE AREAS.**

16. **THIS DRAWING IS INDICATIVE ONLY AND THE DEVELOPER SHALL SUBMIT A SITE SPECIFIC LAYOUT TO IRISH WATER FOR REVIEW.**

17. **SURGE EQUIPMENT TO BE PROVIDED IF DEEMED NECESSARY.**

18. **INDICATIVE LAYOUT RELATES TO SMALL PLUMBING STATIONS AS PER TYPE 1, TYPE 2 & TYPE 3 IN THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**

19. **RooF SLabs SHALL BE DESIGNED TO CARRY ALL LIVE LOADS AND DEAD LOADS, CONSIST OF A REINFORCED CONCRETE SLAB OF IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225MM. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IN FOR REVIEW. ALTERNATIVELY PRE-CAST CONCRETE ROOFS IN COMPLIANCE WITH IS 420 MAY BE USED SUBJECT TO IW REVIEW.**

20. **REINFORCED CONCRETE CHAMBERS TO BE IN ACCORDANCE WITH IS EN 1992-3 - EUROCODE 2 - DESIGN OF CONCRETE STRUCTURES - PART 3: LIQUID RETAINING AND CONTAINMENT STRUCTURES TIGHTNESS CLASS 2**

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**REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT**

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**STANDARD DETAILS - WASTEWATER**

**INDICATIVE PRE-CAST CONCRETE SUBMERSIBLE PUMPING STATION WITH CAST IN-SITU VALVE CHAMBER**

**SCALE NOT TO SCALE**

**DATE JUL. 2016**

**DRAWING No. STD-WW-28A**

**REV**
1. **ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.**
2. **PUMPS SHALL BE INSTALLED TO IRISH WATER REQUIREMENTS. REFER TO PART 5 OF THE CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**
3. **PRE-CAST CONCRETE CHAMBERS MAY BE USED SUBJECT TO REVIEW BY IRISH WATER.**
4. **ALL GATE VALVES TO BE CLOCKWISE CLOSING.**
6. **COVERS TO BE DESIGNED TO ALLOW ADEQUATE SPACE FOR PUMP REMOVAL.**
7. **SELECTION OF PRE-CAST CONCRETE SLABS FOR IN-SITU CONCRETE, GRADE C30/37, WITH A MINIMUM THICKNESS OF 225MM.**
8. **REQUIREMENTS FOR DESIGN AND REINFORCEMENT DETAILS SHALL BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IR IN REVIEW ALTERNATIVELY PRE-CAST CONCRETE ROOFS IN COMPLIANCE WITH IS 420 MAY BE USED SUBJECT TO IR IN REVIEW.**
9. **THE PUMPING STATION SHOULD NOT BE LOCATED IN AREAS THAT ARE SUSCEPTIBLE TO FLOODING AT MORE THAN A 1:30 YEAR RECURRENCE.**
10. **ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI-FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER. THE DEVELOPER SHALL SITE SPECIFIC ANTI-FLOATATION MEASUREMENTS AND MEASURES PROPOSED IN RESPECT OF PUMP STATION STRUCTURES, AND TO TAKE INTO ACCOUNT CONDITIONS DURING ON-SITE TESTING OF STRUCTURES.**
11. **ALL CONCRETE TO BE IN ACCORDANCE WITH IS 206.**
12. **THIS DRAWING IS INDICATIVE ONLY AND THE DEVELOPER SHALL SUBMIT A SITE SPECIFIC LAYOUT TO IRISH WATER FOR REVIEW.**
13. **INDICATIVE LAYOUT RELATES TO SMALL PUMPING STATIONS AS PER TYPE 1, TYPE 2 & TYPE 3 IN THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**
14. **SURFACE BOX TO BE SIZED TO ALLOW ADEQUATE SPACE FOR PUMP REMOVAL MINIMUM 1400 x 800mm.**
15. **CONSTRUCTION JOINTS TO MEET IS 420.**
16. **MIN 100mm GRADE C30/37 CONCRETE SURROUND TO PCC MANHOLE UNITS TO BE INCREASED IN THICKNESS FOR PUMPING STATIONS >3.0m DEEP TO DESIGNERS REQUIREMENTS.**
17. **THE DEVELOPER SHALL SUBMIT NECESSARY FLOOD RISK DOCUMENTATION IN RESPECT OF THESE ISSUES.**
18. **SURFACE BOX TO BE SIZED TO ALLOW ADEQUATE SPACE FOR PUMP REMOVAL MINIMUM 1400 x 800mm.**
19. **INDICATIVE LAYOUT RELATES TO SMALL PUMPING STATIONS AS PER TYPE 1, TYPE 2 & TYPE 3 IN THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**
20. **INDICATIVE LAYOUT RELATES TO SMALL PUMPING STATIONS AS PER TYPE 1, TYPE 2 & TYPE 3 IN THE IRISH WATER CODE OF PRACTICE FOR WASTEWATER INFRASTRUCTURE.**

**STANDARD DETAILS - WASTEWATER**

**INDICATIVE PRE-CAST CONCRETE SUBMERSIBLE PUMPING STATION AND PRECAST VALVE CHAMBER**

**DRAWING No.** STD-WW-28B  **DATE** JUL. 2016

**SCALE** NOT TO SCALE

**REFRESH INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT**
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Precast manholes units: complying with requirements of IS EN 1917 and IS 420.
3. Thicker manhole bases required for sewers in excess of 3m deep where the size is greater than the standard minimum size.
4. Cast in-situ concrete base, grade C20/25 concrete to IS 206 incorporating channel benching etc.
5. Structural design and reinforcement details to be provided by the developer and submitted to Irish Water for review.
6. Manhole roof slabs shall be designed to carry all live and dead loads, and consist of C30/37 concrete. To BS EN 206. With a minimum thickness of 25mm. Alternatively, precast concrete roofs may be used. Subject to review. Developer shall submit a certificate of compliance in accordance with IS420 & IS 1917 in respect all precast units.
7. Covers and frames shall be suitable for road and traffic conditions subject to review by Irish Water.
8. 200mm all around, 100mm deep concrete plinth around covers in green areas.
9. All chambers to be checked for uplift by the developer based on ground conditions within the site. Should anti flotation measures be required they shall be subject to review by Irish Water.
10. All concrete to be in accordance with IS 206.
11. Any special road reinstatement around a cover frame shall be to road authority’s requirements.

**Standard Details - Wastewater**

**Minimum Manhole Diameters**

<table>
<thead>
<tr>
<th>Diameter of Largest Pipe in Manhole (mm)</th>
<th>Internal Diameter of Manhole (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than 150</td>
<td>150</td>
</tr>
<tr>
<td>Greater Than 150 to 750</td>
<td>1250</td>
</tr>
<tr>
<td>Greater Than 750</td>
<td>1500</td>
</tr>
</tbody>
</table>

**Rocker Pipe**

<table>
<thead>
<tr>
<th>Pipe Diameter (mm)</th>
<th>Rocker Pipe Length (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150 to 800</td>
<td>600</td>
</tr>
<tr>
<td>Greater Than 800 to 750</td>
<td>1000</td>
</tr>
<tr>
<td>Greater Than 750</td>
<td>1250</td>
</tr>
</tbody>
</table>

*Sewers greater than 450mm Ø are outside the scope of the Standard Details. Larger manhole size of these chambers may be required due to multiple pipes within manhole.*
1. **All dimensions are in millimetres (mm) unless noted otherwise.**

2. Kiosks to be constructed from thermosetting U.V. & weather resistant plastic powder coated & hot-dipped galvanised mild steel plate (minimum 3mm thickness) to BS EN 1461. Stainless steel may be used as an alternative kiosk material, particularly in severe environments, subject to agreement with Irish Water.

3. Colour to be Kelly Green BS 4800 14 C39. Interior finish to be white unless approved by Irish Water.

4. The quality of kiosk construction shall ensure that the following is achieved:
   - A thermal transmittance (U) of 1.5W per m²K.
   - B) Fire resistance (retention of stability, integrity and insulation) equivalent to Class 2 of BS 476, when tested in accordance with BS 476 for a period exceeding 30 minutes.
   - C) In-painting of Ips or equivalent.

5. Kiosk to have single or double steel gap doors with multiple locks to LPS 1175 SR3 or EN 1627. Minimum double locks with bolts that engage into the sill & header as well as between the two leaves or leaf & frame. Leading edge of leaves to have either rebated edges or fitted with astragals.

6. Kiosk to be bolted to the plinth through a bottom flange with galvanised mild steel or stainless steel anchor bolts.

7. The bottom flange shall be coated with a nanomesh coating and sealed with mastic.

8. Rear shall be reinforced with stainless steel sections to which a marine ply wood - 16mm thick board is fixed.

9. The developer shall be responsible for the ultimate sizing of the kiosk to ensure adequate space requirements.

10. Electrical requirements to be in accordance with ESB specification.

11. The roof of the kiosk shall be removable (bolts) to facilitate backboard removal.

12. All exposed pre-painted to be adequately insulated with pipe lagging.

13. All concrete to be in accordance with BS EN 206.

14. Water tight seals are to be provided where ducting enters duct chambers and kiosks. All ducting to be installed with draw cords.

15. The kiosk shall not be located in areas that are susceptible to flooding at a frequency of more than 1.00 years recurrence. The kiosk facility should be designed for inundation. The finished slab level should be positioned above the 1.00 years flood level. All electrical control equipment shall be water resistant and positioned above the 1.20 year flood level.

16. All dimensions are minimum dimensions and may vary to suit the kiosk requirement.

---

**Control Kiosk**

- **Control Kiosk**
  - Front Elevation
  - Cross Section
  - Plan

- **Ventilation Grilles** to be complete with fly screens to be provided at high level on one side of the kiosk and at low level on the opposite side to ensure that cross ventilation is achieved.

- **Fall on Roof**

---

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment

**Standard Details - Wastewater**

**Type 1 Pumping Station Control Kiosk**

<table>
<thead>
<tr>
<th>DRAWING</th>
<th>TITLE</th>
<th>SCALE</th>
<th>DATE</th>
<th>REV</th>
</tr>
</thead>
<tbody>
<tr>
<td>STD-WW-30</td>
<td>Control Kiosk</td>
<td>NOT TO SCALE</td>
<td>SEPT. 2015</td>
<td>3</td>
</tr>
</tbody>
</table>
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Kiosks to be constructed from thermosetting U.V. & weather resistant plastic powder coated & hot dipped galvanised mild steel plate (minimum 3mm thickness) to BS EN 1461. Stainless steel may be used as an alternative kiosk material, particularly in severe environments, subject to agreement with Irish Water.
3. Colour to be Holly Green BS 4800 14 C39. Interior finish to be white unless approved by Irish Water.
4. The quality of kiosk construction shall ensure that the following is achieved:
   A) A thermal transmittance of 1.5W per m²K.
   B) A fire resistance (retention of stability, integrity and insulation) equivalent to Class 2 of BS 476, when tested in accordance with BS 476 for a period exceeding 30 minutes.
   C) Water proofing of roofs or equivalent.
5. Kiosks to have single or double steel gap doors with multiple locks to LPS 1175/SPD or EN 1627. Minimum double locks with bolts that engage into the sill & header as well as between the two leaves or leaf & frame. Leading edge of leaves to have either rebated edges or fitted with astragals.
6. Kiosks to be bolted to the plinth through a bottom flange with galvanised mild steel or stainless steel anchor bolts.
7. The bottom flange shall be seated on a neoprene gasket and sealed with mastic.
8. Rear wall shall be reinforced with stainless steel sections to which a marine ply wood - 18mm thick board is fixed.
9. The developer shall be responsible for the ultimate sizing of the kiosk to ensure adequate space requirements.
10. Electrical requirements to be in accordance with ESB specification.
11. The roof of the kiosk shall be removable (bolts) to facilitate backboard removal.
12. All exposed pipes/valves to be adequately insulated with pipe lagging.
13. Steelpipe to be in accordance with BS 3620.
14. Water tight seals are to be provided where ducting enters duct chambers and kiosks. All ducting to be installed with draw cords.
15. The kiosk shall not be located in areas that are susceptible to flooding at a frequency of more than 1:10 years recurrence. The kiosk facility should be designed for inundation. The finished slab level should be positioned above the 1:100 years flood level. All electrical control equipment shall be water resistant and positioned above the 1:200 year flood level.
16. All dimensions are minimum dimensions and may vary to suit the kiosk requirement.
17. Alternative blockwork structure with concrete roof to be provided if required by planning permission or to increase security in accordance with clause 5.22 of the code of practice.

Refer to index sheet for notes regarding design responsibility & risk assessment.

Standard Details - Wastewater

Type 2 and Type 3 Pumping Station

Control Kiosk

Title: Type 2 and Type 3 Pumping Station Control Kiosk

Drawing No.: STD-WW-30A

Rev: 0

Date: Sept. 2019

Scale: Not to Scale

Refer to index sheet for notes regarding design responsibility & risk assessment.
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Wet kiosk to be constructed from thermosetting U.V. & weather resistant plastic powder coated & hot-dipped galvanised mild steel plate (minimum 3mm thick) to BS EN 1461. Alternative material, stainless steel in harsh environments, for wet kiosk subject to agreement with Irish Water.
3. Kiosk to have single or double steel/GRP doors with multiple locks to LPS 1175 SR3 or EN 1627. Minimum double locks with bolts that engage into the sill & header as well as between the two leaves or leaf & frame. Leading edge of leaves to have either rebated edges or fitted with astragals.
4. Colour to be holly green BS 4800 14 C39. Interior finish to be white unless approved by Irish Water.
5. The developer shall be responsible for the ultimate sizing of the kiosk to ensure adequate space requirements.
6. All exposed pipework to be adequately insulated with pipe lagging.
7. All concrete to be in accordance with IS EN 206.
8. All dimensions are minimum dimensions and may vary to suit the kiosk requirement.

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment

STANDARD DETAILS - WASTEWATER

PUMPING STATION
WET KIOSK

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT
IRISH WATER APPROVED BOUNDARY BOX AND COVER TO BS 5834-2 TO BE LOCATED AWAY FROM VEHICULAR AXIAL LOADING WHERE POSSIBLE.

THE BOUNDARY BOX IS TO BE INSTALLED AT A MINIMUM DEPTH OF 600 mm (+/-25 mm) TO THE CROWN OF THE INLET & OUTLET FITTINGS ON THE OUTSIDE OF THE BOX.

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. WET KIOSK TO BE CONSTRUCTED FROM THERMOSETTING U.V. & WEATHER RESISTANT PLASTIC POWDER COATED & HOT DIPPED GALVANISED MILD STEEL PLATE (MINIMUM 3mm THICK) TO BS EN 1461. ALTERNATIVE MATERIAL, STAINLESS STEEL IN HARSH ENVIRONMENTS, FOR WET KIOSK SUBJECT TO AGREEMENT WITH IRISH WATER.
3. KIOSK TO HAVE SINGLE OR DOUBLE STEEL/GRP DOORS WITH MULTIPLE LOCKS TO LPS 1175 SR3 OR EN 1627. MINIMUM DOUBLE LOCKS WITH BOLTS THAT ENGAGE INTO THE SILL & HEADER AS WELL AS BETWEEN THE TWO LEAVES OR LEAF & FRAME. LEADING EDGE OF LEAVES TO HAVE EITHER REBATED EDGES OR FITTED WITH ASTRAGALS.
4. COLOUR TO BE HOLLY GREEN BS 4800 14 C39. INTERIOR FINISH TO BE WHITE UNLESS APPROVED BY IRISH WATER.
5. THE DEVELOPER SHALL BE RESPONSIBLE FOR THE ULTIMATE SIZING OF THE KIOSK TO ENSURE ADEQUATE SPACE REQUIREMENTS.
6. ALL EXPOSED PIPEWORK TO BE ADEQUATELY INSULATED WITH PIPE LAGGING.
7. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.
8. ALL DIMENSIONS ARE MINIMUM DIMENSIONS AND MAY VARY TO SUIT THE KIOSK REQUIREMENT.

REFERENCES:
- STD-W-13 FOR BEDDING DETAILS
- REFER TO NOTE 5

WET KIOSK WATER SERVICE CONNECTION DETAIL

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.

2. REGULATING COURSE TO BE REVIEWED BY IRISH WATER.

3. STRUCTURAL DESIGN AND REINFORCEMENT DETAIL TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.

4. ALL CONCRETE TO BE IN ACCORDANCE WITH IS EN 206.

5. PRECAST KERBS TO BE IN ACCORDANCE WITH IS EN 1340:2003.

PERMEABLE SURFACE AREA
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. LAMP BOLLARD TO BE REVIEWED BY IRISH WATER.
3. LAMP STANDARD TO BE REVIEWED BY IRISH WATER.
4. ELECTRICAL DUCTING TO BE IN ACCORDANCE WITH ESB SPECIFICATION.
1. All dimensions are in millimetres (mm) unless noted otherwise.
2. Structural design and reinforcement detail to be provided by the developer and submitted to Irish Water for review.
3. All concrete to be in accordance with IS EN 206.
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRE-CAST MANHOLE UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420. (SEE STD-WW-35A)
3. CONCRETE CAST IN-SITU BASE C25/30 TO IS 206 WITH DRAINAGE SUMP AS PER DETAIL SHOWN.
4. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
5. MANHOLE ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, AND CONSIST OF C30/35 CONCRETE, TO IE EN 206, WITH A MINIMUM THICKNESS OF 225mm.
   ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IW REVIEW; DEVELOPER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH IS420 & IS 1917 IN RESPECT ALL PRE-CAST UNITS
6. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
7. 200mm ALL AROUND, 100mm DEEP CONCRETE PLINTH AROUND COVERS IN GREEN AREAS.
8. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
9. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE SUITABLE FOR ROAD AUTHORITY'S REQUIREMENTS.
10. NON ROAD CONSTRUCTION & SURFACES SHOWN TO BE SUITABLE FOR ROAD AUTHORITY REQUIREMENTS.
11. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF ‘GUIDELINES FOR MANAGING OPENINGS IN PUBLIC ROADS’ BY THE DEPT. OF TRANSPORT, TOURISM & SPORT, OR TRANSPORT INFRASTRUCTURE, IRISH REQUIREMENTS.

COVER TO BE SET IN CEMENTITIOUS EPOXY RESIN/POLYESTER MORTAR 30N/mm²
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. 750 x 750mm
COVER TO BE SEALED & LOCKABLE

REFER TO STD-WW-16 & 17 FOR DETAILS

SECTION A-A
PE TO DI DETAIL

REFERENCE TABLE FOR INTERNAL DIMENSIONS

<table>
<thead>
<tr>
<th>PIPE DIAMETER (mm)</th>
<th>INTERNAL CHAMBER DIMENSIONS</th>
<th>COVER DIMENSIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>80 - 300</td>
<td>1200 x 1500mm</td>
<td>600 x 600mm</td>
</tr>
</tbody>
</table>

PLAN

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT
ALL PRECAST CHAMBER RINGS TO BE REINFORCED
BOTTOM PRECAST SECTION TO BE BUILT INTO BASE CONCRETE MINIMUM 75 mm
150mm GRADE C20/25 IN-SITU FORMED CONCRETE SURROUND
PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH IS EN 1917: 2004
75mm GRADE C12/15 BLINDING CONCRETE
ELASTOMERIC JOINTSEAL TO EN 681
1 TO 2 COURSES OF CLASS B SOLID ENGINEERING BRICK SET IN M30 MORTAR TO ISEN 998
REINFORCED CONCRETE BASE GRADE C30/37
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. 750 x 750mm
COVER TO BE SET IN CEMENTITIOUS EPOXY REINFORCEMENT MORTAR 30N/mm²
COVER TO BE SEALED & LOCKABLE FINISHED GROUND LEVEL
REFER TO TABLE FOR PRE-CAST RING DIAMETER
CONCRETE ROOF SLAB C30/37 REINFORCED SLAB MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D, CLASS 1, GALVANISED MILD STEEL & PLASTIC ENCAPSULATED.
DI. FLANGED PLAIN ENDED PIPE WITH THRUST FLANGE (CUT TO SUIT)
ROCKER PIPE
DEEP SUMP.
Valve Chamber Required upstream of Rodding Chamber
Valve Chamber Required downstream of Rodding Chamber
PE STUB FLANGE
PE TO DI DETAIL
PLAN
SECTION A-A
PRECAST CONCRETE OPTION
RISING MAIN
RODDING CHAMBER
PRECAST CONCRETE OPTION

<table>
<thead>
<tr>
<th>Internal Chamber Dimensions</th>
<th>Cover Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500mm Ø</td>
<td>630 x 630mm</td>
</tr>
</tbody>
</table>

1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420. (SEE STD-WW-35A)
3. CONCRETE CAST IN-SITU BASE C25/30 TO IS 2948 WITH DRAINAGE SUMP AS PER DETAIL SHOWN.
4. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
5. MANHOLE ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, AND CONSIST OF C30/35 CONCRETE, TO IS EN 206, WITH A MINIMUM THICKNESS OF 225mm.
   ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IW REVIEW, DEVELOPER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH IS420 & IS EN 1917 IN RESPECT ALL PRECAST UNITS
6. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
7. CONCRETE CAST IN-SITU CRADLE
8. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
9. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
10. New road construction & surfacing work to be to road authority requirements.
11. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "Policies for Managing Openings in Public Road" by the Dept. of Transp., Tourism & Sport, or Transport Infrastructure Ireland, Requirements.

PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH IS EN 1917: 2004
75mm GRADE C12/15 BLINDING CONCRETE
ELASTOMERIC JOINTSEAL TO EN 681
1 TO 2 COURSES OF CLASS B SOLID ENGINEERING BRICK SET IN M30 MORTAR TO ISEN 998
REINFORCED CONCRETE BASE GRADE C30/37
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. 750 x 750mm
COVER TO BE SET IN CEMENTITIOUS EPOXY REINFORCEMENT MORTAR 30N/mm²
COVER TO BE SEALED & LOCKABLE FINISHED GROUND LEVEL
REFER TO TABLE FOR PRE-CAST RING DIAMETER
CONCRETE ROOF SLAB C30/37 REINFORCED SLAB MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D, GRADE C12/15 BLINDING CONCRETE
REINFORCED CONCRETE BASE GRADE C30/37
DI. FLANGED PLAIN ENDED PIPE WITH THRUST FLANGE (CUT TO SUIT)
ROCKER PIPE
DEEP SUMP.
Valve Chamber Required upstream of Rodding Chamber
Valve Chamber Required downstream of Rodding Chamber
PE STUB FLANGE
PE TO DI DETAIL
PLAN
SECTION A-A
PRECAST CONCRETE OPTION
RISING MAIN
RODDING CHAMBER
PRECAST CONCRETE OPTION

<table>
<thead>
<tr>
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1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420. (SEE STD-WW-35A)
3. CONCRETE CAST IN-SITU BASE C25/30 TO IS 2948 WITH DRAINAGE SUMP AS PER DETAIL SHOWN.
4. STRUCTURAL DESIGN AND REINFORCEMENT DETAILS TO BE PROVIDED BY THE DEVELOPER AND SUBMITTED TO IRISH WATER FOR REVIEW.
5. MANHOLE ROOF SLABS SHALL BE DESIGNED TO CARRY ALL LIVE AND DEAD LOADS, AND CONSIST OF C30/35 CONCRETE, TO IS EN 206, WITH A MINIMUM THICKNESS OF 225mm.
   ALTERNATIVELY, PRE-CAST CONCRETE ROOFS MAY BE USED, SUBJECT TO IW REVIEW, DEVELOPER SHALL SUBMIT A CERTIFICATE OF COMPLIANCE IN ACCORDANCE WITH IS420 & IS EN 1917 IN RESPECT ALL PRECAST UNITS
6. COVERS AND FRAMES SHALL BE SUITABLE FOR ROAD AND TRAFFIC CONDITIONS SUBJECT TO REVIEW BY IRISH WATER.
7. CONCRETE CAST IN-SITU CRADLE
8. ALL CHAMBERS TO BE CHECKED FOR UPLIFT BY THE DEVELOPER BASED ON GROUND CONDITIONS WITHIN THE SITE. SHOULD ANTI FLOATATION MEASURES BE REQUIRED THEY SHALL BE SUBJECT TO REVIEW BY IRISH WATER.
9. ANY SPECIAL ROAD REINSTATEMENT AROUND COVER & FRAME SHALL BE TO ROAD AUTHORITY'S REQUIREMENTS.
10. New road construction & surfacing work to be to road authority requirements.
11. EXISTING ROAD REINSTATEMENT TO COMPLY WITH CURRENT VERSION OF "Policies for Managing Openings in Public Road" by the Dept. of Transp., Tourism & Sport, or Transport Infrastructure Ireland, Requirements.

PRECAST CONCRETE MANHOLE RINGS TO IS 420 IN CONJUNCTION WITH IS EN 1917: 2004
75mm GRADE C12/15 BLINDING CONCRETE
ELASTOMERIC JOINTSEAL TO EN 681
1 TO 2 COURSES OF CLASS B SOLID ENGINEERING BRICK SET IN M30 MORTAR TO ISEN 998
REINFORCED CONCRETE BASE GRADE C30/37
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. 750 x 750mm
COVER TO BE SET IN CEMENTITIOUS EPOXY REINFORCEMENT MORTAR 30N/mm²
COVER TO BE SEALED & LOCKABLE FINISHED GROUND LEVEL
REFER TO TABLE FOR PRE-CAST RING DIAMETER
CONCRETE ROOF SLAB C30/37 REINFORCED SLAB MANHOLE STEPS TO COMPLY WITH IS EN 13101, TYPE D, GRADE C12/15 BLINDING CONCRETE
REINFORCED CONCRETE BASE GRADE C30/37
DI. FLANGED PLAIN ENDED PIPE WITH THRUST FLANGE (CUT TO SUIT)
ROCKER PIPE
DEEP SUMP.
Valve Chamber Required upstream of Rodding Chamber
Valve Chamber Required downstream of Rodding Chamber
PE STUB FLANGE
PE TO DI DETAIL
PLAN
SECTION A-A
PRECAST CONCRETE OPTION
RISING MAIN
RODDING CHAMBER
PRECAST CONCRETE OPTION

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<tr>
<th>Internal Chamber Dimensions</th>
<th>Cover Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1500mm Ø</td>
<td>630 x 630mm</td>
</tr>
</tbody>
</table>
1. WHERE PRACTICAL, MARKER PLATES SHALL BE FITTED TO ADJACENT WALLS/ENDS OF PIPES AND ATTACHED WITH SUNDWELD SCREWS.
2. PLATES TO BE FIXED IN POSITION USING RIVETS, PLUGS AND STAINLESS STEEL SCREWS.
3. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.
4. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.
5. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.
6. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.
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9. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.
10. MARKER PLATE TO BE MANUFACTURED IN ACCORDANCE WITH BS 3689.

CONCRETE BASE GRADE C20/25

DIAMETER OF WATERMAIN (100mm) - 40mm HIGH TEXT

DISTANCE OF SV FROM MARKER PLATE (m)

RIGHT HAND CLOSING (WHERE APPLICABLE)

LEFT HAND CLOSING (WHERE APPLICABLE)

NOTE: DIAMETER OF RISING MAIN SHOWN FOR ILLUSTRATIVE PURPOSES ONLY AND REFERS TO THE NOMINAL INTERNAL DIAMETER OF THE WATERMAIN (mm). DIMENSIONS AND DISTANCE TO MARKER PLATE WILL VARY.

REFER TO INDEX SHEET FOR NOTES REGARDING DESIGN RESPONSIBILITY & RISK ASSESSMENT.
1. For notes refer to STD-WW-12.
2. Lean-mix low strength concrete surround required to service connections with less than 1.2 m cover in trafficked areas.
3. Smaller inspection chambers with internal dimensions of 450 mm Ø or 450x450 mm may be permitted subject to approval by Irish Water.
1. FOR NOTES REFER TO STD-WW-13
2. CONCRETE SURROUND REQUIRED TO SERVICE CONNECTIONS WITH LESS THAT 1.2m COVER IN TRAFFICKED AREAS.
3. IN SITUATIONS WHERE THE INTERNAL LAYOUT OF UNITS PERMIT, IT MAY BE AGREABLE TO SHARE ONE INSPECTION CHAMBER BETWEEN TWO PROPERTY UNITS. THIS SHOULD BE AGREED WITH IRISH WATER AT EARLY DESIGN STAGE.
4. MINIMUM DISTANCE BETWEEN SERVICE CONNECTIONS AND OTHER SERVICES CONNECTIONS TO BE 300mm.

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment

Standard Details - Wastewater

Layout Plan Showing Below Ground Services
Separation Details in High Density Developments
2.5m Wide Footpaths with 6.0m Wide Carriageway
SECTION SHOWING WASTEWATER SERVICES
SEPARATION DETAILS IN HIGH DENSITY DEVELOPMENTS

1.8m Wide Footpaths, 2.5m wide Parallel Parking Bays with 6.0m Wide Carriageway.

MAINTENANCE RESPONSIBILITY OF THE WASTEWATER SERVICE CONNECTIONS FROM THE SEWER TO THE BOUNDARY IS SET OUT IN THE PIPE MAINTENANCE RESPONSIBILITY DIAGRAMS INCLUDED ON THE IN WEBSITE @ WWW.WATER.IE.
1. FOR NOTES REFER TO STD-WW-13
2. LEAN/MIX LOW STRENGTH CONCRETE SURROUND REQUIRED TO SERVICE CONNECTIONS WITH LESS THAT 1.2m COVER IN TRAFFICKED AREAS
3. IN SITUATIONS WHERE THE INTERNAL LAYOUT OF UNITS PERMIT, IT MAY BE AGREEABLE TO SHARE ONE INSPECTION CHAMBER BETWEEN TWO PROPERTY UNITS. THIS SHOULD BE AGREED WITH IRISH WATER AT EARLY DESIGN STAGE
4. MINIMUM DISTANCE BETWEEN SERVICE CONNECTIONS AND OTHER SERVICES CONNECTIONS TO BE 300mm.

Refer to Index Sheet for Notes Regarding Design Responsibility & Risk Assessment

LAYOUT PLAN SHOWING BELOW GROUND SERVICES
SEPARATION DETAILS IN HIGH DENSITY DEVELOPMENTS
1.8m Wide Footpaths, 2.5m Wide Parallel Parking Bays with 6.0m Wide Carriageway.
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<tr>
<th>Drg. No.</th>
<th>DRAWING TITLE</th>
<th>MATERIAL CHANGE</th>
<th>EDITORIAL CHANGE</th>
<th>REV</th>
<th>COMMENTS</th>
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<tr>
<td>STD-WW-01</td>
<td>WASTEWATER SERVICE CONNECTION MAINTENANCE RESPONSIBILITY</td>
<td>B-C ownership revised – table revised</td>
<td>Updated &amp; added Notes</td>
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<td>STD-WW-02</td>
<td>TYPICAL LAYOUT FOR SEWER WITHIN NEW DEVELOPMENTS</td>
<td>Connection interface detail updated, dead and future connection shown, notes updated</td>
<td>Service connection responsibility revised Concrete surround at saddle removed, table updated, 3D view added.</td>
<td>Updated &amp; added Notes</td>
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<td>DRAIN AND SERVICE CONNECTION PIPEWORK</td>
<td>Updated connection detail and notes</td>
<td>Updated and added notes</td>
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<td>TYPICAL SERVICE / SERVICE PIPE CONNECTION</td>
<td>Separation distances to sewers added, notes updated</td>
<td>Updated and added notes</td>
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<td>TYPICAL SERVICE LAYOUT INDICATING SEPARATION DISTANCES</td>
<td>Separation distances to sewers added, notes updated</td>
<td>Updated and added notes</td>
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<td>RESTRICTIONS ON NEW TREES/SHRUBS PLANTING ADJACENT TO SEWERS</td>
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<td>Updated Notes</td>
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<td>CONCRETE PROTECTION SLAB, BED, HAUNCH, AND SURROUND TO WASTEWATER PIPES</td>
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<td>Updated &amp; added Notes</td>
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<td>BEDDING MORTAR NOTES REVISED AND NOTES UPDATED</td>
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<td>STD-WW-11</td>
<td>IN-SITU CONCRETE MANHOLE</td>
<td>Manhole cover size, bedding, and brick coursing notes revised</td>
<td>Updated &amp; added Notes</td>
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<td>STD-WW-12</td>
<td>BACKDROP AND CASCADE MANHOLE</td>
<td>Cascade manhole type 4 added, redding eye end cap detail added and notes updated</td>
<td>Updated &amp; added Notes</td>
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<td>STD-WW-13</td>
<td>PRIVATE SIDE INSPECTION CHAMBER</td>
<td>Added flexible material inspection Chamber detail and updated notes</td>
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<td>STD-WW-14</td>
<td>THRUST BLOCKS FOR RISING MAIN</td>
<td>Notes updated</td>
<td>Note 11 updated</td>
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<td>STD-WW-15</td>
<td>SCOUR VALVE CHAMBER [FOUL RISING MAIN ≤200mm DIA.]</td>
<td>Manhole cover bedding, and brick coursing notes revised</td>
<td>Updated &amp; notes revised</td>
<td>3</td>
<td>Drawing revised</td>
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<td>STD-WW-16</td>
<td>DIAMETER DETAILS FOR RISING MAINS DUCTILE IRON (D.I.) PIPE (≤200mm DIA.)</td>
<td>Added anti-torque support note, brickwork bedding mortar spec, added plan dimensions and updated notes</td>
<td>Updated &amp; notes revised</td>
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<td>Drawing revised</td>
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<td>STD-WW-17</td>
<td>DIAMETER DETAILS FOR RISING MAINS POLYETHYLENE (P.E.) PIPE (≤200mm DIA.)</td>
<td>Added anti-torque support note, brickwork bedding mortar spec, added plan dimensions and updated notes</td>
<td>Updated &amp; notes revised</td>
<td>3</td>
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<td>STD-WW-18</td>
<td>AIR VALVE CHAMBER [FOUL RISING MAIN ≤200mm DIA.]</td>
<td>Updated brickwork bedding mortar spec, precast option added, and updated notes</td>
<td>Updated &amp; notes revised</td>
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<td>STD-WW-19</td>
<td>DUCT CHAMBER</td>
<td>Included drain point, updated cover bedding spec / brickwork notes and updated notes</td>
<td>Updated &amp; notes revised</td>
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<td>Drawing revised</td>
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<td>STD-WW-20</td>
<td>EMERGENCY OVERFLOW STRUCTURE &amp; EMERGENCY OVERFLOW TO STORM SEWER</td>
<td>Updated title, added emergency overflow to storm sewer detail, updated notes</td>
<td>Updated &amp; notes revised</td>
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<td>STD-WW-21</td>
<td>TYPICAL DITCH STREAM CROSSING FOR MAIN SEWER [Sheet 2 of 2]</td>
<td>Pipe details added, PE details added</td>
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<td>TYPICAL DITCH STREAM CROSSING FOR POLYETHYLENE RISING MAIN</td>
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<td>STD-WW-23</td>
<td>TYPICAL BRIDGE CROSSING FOR RISING MAIN (Sheet 1 of 1)</td>
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<td>TYPICAL BRIDGE CROSSING FOR RISING MAIN (Sheet 2 of 2)</td>
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<td>SECURITY GATE &amp; FENCING PASSENGER OPTION (PREFERRED)</td>
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<td>STD-WW-26</td>
<td>INDICATIVE PUMPING STATION SITE LAYOUT ACCES VIA LAY-BY</td>
<td>Site layout modified, notes updated</td>
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<td>INDICATIVE PUMPING STATION SITE LAYOUT ACCESS FROM PUBLIC ROAD</td>
<td>Updated &amp; notes revised</td>
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<td>STD-WW-27</td>
<td>FLOW METER CHAMBER [FOUL RISING MAIN &lt;200mm DIA.] CAST IN-SITU CONCRETE OPTION</td>
<td>Chamber sizes revised, notes added, spool piece length table added, notes revised</td>
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<td>FLOW METER &amp; VALVE CHAMBER [FOUL RISING MAIN &lt;200mm DIA.] PRECAST CONCRETE OPTION</td>
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<td>STD-WW-28</td>
<td>CAST IN-SITU INDICATIVE SUBMERSIBLE PUMPING STATION</td>
<td>Valve chamber modified, lifting davit removed, bauer fitting note added</td>
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<td>Drawing revised</td>
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<tr>
<td>STD-WW-28A</td>
<td>INDICATIVE PRE-CAST CONCRETE SUBMERSIBLE PUMP STATION WITH CAST IN-SITU VALVE CHAMBER</td>
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<td>INDICATIVE PRE-CAST CONCRETE SUBMERSIBLE PUMP STATION AND PRECAST VALVE CHAMBER</td>
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<td>STD-WW-29</td>
<td>RISING MAIN DISCHARGE STAND OFF MANHOLE</td>
<td>General detail update, show banching on plan, manhole bedding, and brick coursing notes revised, vent stack notes added, rocker pipe length table added, title updated</td>
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<td>Drawing revised</td>
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<td>STD-WW-30</td>
<td>TYPE 1 PUMPING STATION CONTROL KISOK</td>
<td>Modified kiosk dimensions, updated title, updated notes</td>
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<td>STD-WW-30A</td>
<td>TYPE 2 AND TYPE 3 PUMPING STATION CONTROL KISOK</td>
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<td>STD-WW-31</td>
<td>PUMPING STATION WET KISOK</td>
<td>Modified kiosk dimensions, updated title, updated notes</td>
<td>Updated &amp; notes revised</td>
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<td>STD-WW-31A</td>
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<td>STD-WW-32</td>
<td>HARDSTANDING AREA PUMPING STATION [PERMEABLE &amp; IMPERMEABLE]</td>
<td>Material depths modified, permeable area detail extended, drainage detail added</td>
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<tr>
<td>STD-WW-33</td>
<td>LAMP BOULDER &amp; LAMP STANDARD</td>
<td>Cable ducting to lamp boivier added</td>
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<td>STD-WW-34</td>
<td>VENT STACK</td>
<td>General presentation update, stack height reduced, passive odour control filter unit note added.</td>
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<td>STD-WW-38</td>
<td>LAYOUT PLAN SHOWING BELOW GROUND SERVICES SEPARATION DETAILS IN HIGH DENSITY DEVELOPMENTS 2.5m wide footpaths with 0.8m wide carriageway</td>
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<td>STD-WW-39</td>
<td>SECTION SHOWING WASTEWATER SERVICES SEPARATION DETAILS IN HIGH DENSITY DEVELOPMENTS 1.8m wide footpaths, 2.5m wide parallel parking bays with 0.8m wide carriageway</td>
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<td>STD-WW-40</td>
<td>LAYOUT PLAN SHOWING BELOW GROUND SERVICES SEPARATION DETAILS IN HIGH DENSITY DEVELOPMENTS 1.8m wide footpaths, 2.5m wide parallel parking bays with 0.8m wide carriageway</td>
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<td>Drawing revised</td>
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/ Design Review Assessment for Wastewater Standards

| Included of STD-WW-06A | General Amendments | v4.01 | Document revised | | |