Code of Practice for Wastewater Infrastructure

Connections and Developer Services

Design and Construction Requirements for Self-Lay Developments

July 2020 (Revision 2)

Document IW-CDS-5030-03

UISCE WATER

Part of ervia group

IW CDS 5030 03

3.20 Working near Existing Pipes (Notifications and Separation Distances)

Detailed proposals, including work method statements, insurance confirmation and details of work completed of a similar nature must be submitted to Irish Water for its consideration before approval will be issued prior to undertaking work in close proximity to Irish Water assets. All such works in the vicinity of Water Mains or Sewers of 400mm diameter and greater 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 and Sewers. The placing of concrete over or around Water Mains is expressly forbidden.

In the case of installations in close proximity to **existing** Water Mains and Sewers, the following minimum horizontal distances shall be maintained between pipes/ducts, cabinets, poles, Manholes, junction boxes, chambers, etc. where depth to the existing infrastructure does not exceed 1.5m:

3.20.1 600mm at either side of pressure mains up to and including 150mm diameter;
3.20.2 1m at either side of pressure mains of 200mm to 250mm diameter;
3.20.3 2m at either side of pressure mains of 300mm and 375mm diameter;
3.20.4 5m at either side of pressure mains of 400mm and 450mm diameter;
3.20.5 Specific Irish Water advised distances for pressure mains in excess of 475mm;
3.20.6 600mm at either side of gravity sewer up to and including 225mm diameter;
3.20.7 1m at either side of gravity sewer of 300mm and up to 450 mm diameter;
3.20.8 1.5m at either side of gravity sewers of 600mm diameter and greater.

Specific written permission shall be required from Irish Water for installing infrastructure closer to existing Irish Water asset than the limits outlined above or where the depth of the existing service exceeds 1.5m. For strategic fibre optic or oil filled cables, the separation distance requirements of the service provider shall apply. Irish Water may require increased clearance separation distances in excess of the specific utility providers requirements.

The separation distances between new pipework associated with the Works and between the pipework associated with the Works and other utility pipework are set out in **Section 3.5.18** and **Section 3.5.19** above.

Where pipes or ducts 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 15 working days ahead of the commencement of the work. This requirement shall also apply to the carrying out of trial holes or slit trenches to locate the main or to gather ground investigation data. In the case of large diameter (350mm or greater) distribution and trunk Water Mains and Sewers, Irish Water must be notified at least one month before the work is commenced. This notification is in addition to any formal procedures

detailed elsewhere in this document. The notifications shall apply where work is proposed within the following proximities of Irish Water infrastructure:

3.20.9 1m at either side of existing pipes less than 200mm diameter;
3.20.10 2m at either side of existing pipes of 200mm to 350mm diameter; and
3.20.11 5m at either side of existing pipes of 350mm or greater.

Developer' s shall also comply with any notification requirements associated with other utility providers' infrastructure (ESB Networks, Gas Networks Ireland, telecommunications providers, etc.) that these Utility Companies might have.

Any costs arising from the Developer work associated with locating pipework or any costs due to work undertaken by Irish Water or its agents to assist the Developer in identifying and locating the infrastructure shall be fully covered by the Developer. The Developer will be notified of these costs in advance.

Irish Water reserves the right to revert to the Developer with specific requirements in relation to protection of its Water Mains and/or Sewer. Care shall be taken while laying pipes so as not to damage any Water Main or Sewer or any accessories. Any damage shall be notified immediately to Irish Water on the Irish Water website, www.water.ie. The person who causes the damage to a Water Main or Sewer or any accessories will be deemed to have committed an offence under Section 45 of the Water Services Act 2007.

3.21 Environmental Considerations

The design should take into account the impact of the Works on the environment and the impact of the environment on the Works. Cognisance should be taken of amenity conservation, preservation of access to the public and facilitation of recreation when designing infrastructure. Consideration should also be taken of areas of specific ecological interest such as Special Area of Conservation (SACs), National Heritage Area (NHAs), etc.

The design of landscaping works shall be undertaken concurrently and in conjunction with the design of the Works. The collaborative design process shall incorporate and take account of any likely assessed negative impact(s) on the root zones and root protection areas of trees and/or large shrubs on the Works. The design process shall seek to minimise risk to roots and the risk of root ingress to the Works by appropriate separation distances or by the provision of root protection barriers.

The design, procurement and supervision of the landscaping works next to and over the Works shall be undertaken by the Developer using a fully qualified and competent landscape architect, working in collaboration with a fully qualified and competent arboriculturist, both in consultation with Irish Water. Any part of Works which does not have special tree root protection measures shall be positioned with adequate separation from new trees/shrubs to ensure that their root systems will not cause damage to the

infrastructure. These separation distances will vary from (tree and shrub) species to species and specialist advice shall be obtained by the Developer from his/her landscape architect and arboriculture advisers in this regard, as outlined above, and provided in the Design Submission.

Special tree root protection measures may be provided to reduce the separation distances between the Works and the new planting. The design of the tree planting and species selection will need to be decided in relation to the depth of the pipe and the distance from the Works. Where tree planting is proposed within the distances where tree roots could directly damage the Works, as referenced in Table A1 of BS 5837, special protection measures shall be provided. These measures might be achieved in the pipe system by the provision of high performance joints or the use of polyethylene pipes with welded joints. Alternatively, proprietary protection systems, such as vertical barriers, geotextile pipe wrap, tree planting pits, etc. may be used to prevent the tree roots systems from reaching the Works.

Tree planting will not normally be allowed directly over the Works or within the distances referred to in Table A1 of BS 5837, but this may be increased depending on the species type or relaxed where it can be shown that appropriate species selection and protection measures can be provided to prevent root ingress damage to the satisfaction of Irish Water. Such protection measures may include root barriers, root directors and by avoiding planting next to joints, valves or other sensitive parts of the pipe system.

Where such planting is carried out directly over the Works and where excavation is required to subsequently access the infrastructure, there may be a requirement to remove the trees/shrubs, but this will be assessed on a case by case basis and any possible mitigation measures to reduce impact on tree vegetation should be investigated before a final decision to remove the tree vegetation is taken. Only shallow rooting shrubs shall be planted close to or over the Works.

Where new pipe installation works are to be carried out near existing tree vegetation, these shall be in accordance with the provisions of BS 5837 (Trees in Relation to Design, Demolition and Construction – Recommendations) and the National Joint Utilities Group (NJUG), Guidelines for Planting, Installation and Maintenance of Utility Apparatus in Proximity to Trees, Volume 4, which outline the following zones:

Prohibited Zone (1m from tree trunk): Excavation of any kind shall not be undertaken within this zone unless, after full consultation with an arboriculturist or landscape consultant, it is deemed acceptable. No material, plant and spoil shall be stored within this area.

Precaution Zone (defined as a radius of four times the circumference of the tree at 1.5m above ground level): Where excavation is carried out within this zone, the use of mechanical excavation plant shall be prohibited. All such excavation works shall be carried out manually or with the aid of an air-spade or vacuum and precautions shall be undertaken to protect any exposed roots from damage. All such excavation

works shall be supervised by a qualified arborist. No material, plant and spoil shall be stored within this area.

Permitted Zone (outside the Precaution Zone): Excavation works may be undertaken within this zone, but caution must be applied and the use of mechanical plant limited. Any exposed roots should be protected.

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The installation of any new pipework or the planting of new tree vegetation within the vicinity of existing pipe systems will need to take account of the provisions of BS 5837 and BS 8545. Irish Water does not favour planting over its Networks.

3.22 Food Service Establishments

A Grease Recovery Unit (GRU) must be fitted on the outlet from all kitchen sinks within Food Service Establishments (FSE) and commercial buildings with food preparation or canteen facilities subject to the requirements of Irish Water. Cognisance shall be taken of the guidance provided in the Water Services Training Group Guidance Document for Control of Fat, Oil and Grease or any updated guidance as may be issued by Irish Water. Grease traps and/or GRUs must also be fitted on any commercial scale food preparation locations to achieve the discharge limits set out in the Trade Effluent Licence. The use of degreasing agents and enzymes for the breakdown of grease is not permitted, except with the agreement of Irish Water.

3.23 Grease Traps

Trade Effluent from commercial food preparation areas is subject to Trade Effluent Licensing, in accordance with the provisions of the Local Government (Water Pollution) Act (1977 – 1990). Such discharges shall discharge to a suitably sized and manufactured grease trap, designed in accordance with IS EN 1825, prior to discharge of the Wastewater to the Works. Full details of the grease trap, including details of the proposed maintenance regime, shall be submitted to and agreed with Irish Water's Wastewater Source Control and Licencing (WWSCL) unit. These details shall include design loading of the grease trap, grease trap capacity, etc. Compliance with guidance as set out in the Water Services Training Group Fat, Oil and Grease (FOG) Guidance Document and Irish Water's policy is required in respect of FOG control.

3.24 Macerators

No under-sink or other type of food macerator/grinder for the processing, discharging or disposal of food waste to the drainage system shall be installed in developments.

3.25 Basements

Special provision shall be provided by the Developer where Works are required to collect Wastewater from basement areas. All Wastewater from basements shall be pumped to ground level to discharge by gravity to the Irish Water Network. The pumped

Wastewater shall discharge initially to a standoff (Rising Main discharge (header)) Manhole before discharging to a Gravity Sewer connection to a Manhole on the public Sewer (See **Section 3.7.14** and **Section 3.15**). Direct pumping to the Network shall not be permitted.

Storm Water from basement car parks shall not be discharged to the Network. Such discharge shall be directed to the existing Storm Water Sewer in accordance with the requirements of the Local Authority for the area. Specific requirements may be required by the Local Authority for the prevention of Storm Water flows from basements via access points, provision of petrol/oil interceptors on Storm Drains, etc.

3.26 Marker Tape

All sewers and rising main pipework shall have non-degradable marker tape, red or orange in colour, installed 300mm above the crown of the pipework or above the granular surround material and directly above the centreline of the Pipe. The marker tape shall be laid around Manholes in the case of sewers to ensure continuity. It shall be tied to rising main fittings (valves) at a depth of 350mm and terminated at the pumping station. The tape shall be 400mm wide brown polyethylene material, in accordance with IS EN 12613 – Plastic Warning Devices for Underground Cables and Pipelines with Visual Characteristics. Plastic pipes and concrete pipes shall have a warning mesh incorporating a polypropylene reinforced band of stainless steel tracer wire. The correct operation of the tracing wire shall be tested.

Service Connections shall have a 200mm wide tape laid at the same depths as outlined above (300mm).

3.27 Indicator Marker Plates and Posts

Indicator plates shall clearly identify scour valve, wastewater air valves, meter and sluice valve locations. They shall be located to the approval of both Irish Water and the Roads Authority for the area. The plates shall be mounted on marker posts at the back of footpaths or on the boundary wall of the public thoroughfare nearest to the hydrant or valve.

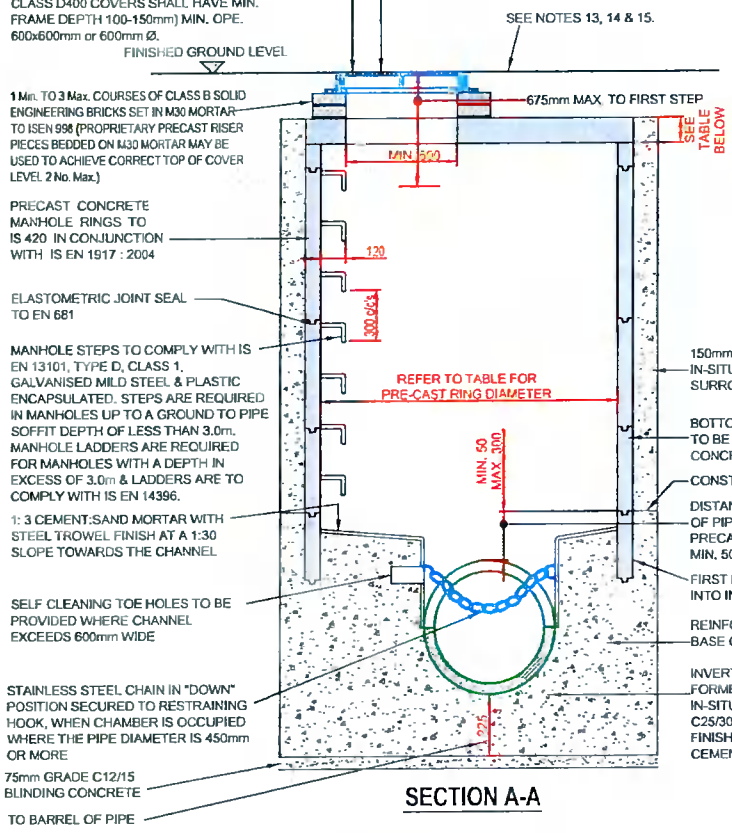
The indicator plates and baseboard plates shall comply with BS 3251. The plate shall show the diameter of the Rising Main in "mm" and the distance from the marker to the fitting in "m". Indicator plates shall have fixed black letters (AV, SV, ScV and Me respectively) on a brown background. The plate shall show the diameter of the Main in "mm" and the distance from the marker to the fitting shall be indicated in "m". Marker plates shall be metal and shall be fixed with stainless steel non-retractable screws.

Marker posts shall be of concrete construction, complying with IS EN 206, to conform to IS 162. They shall be set 450mm deep in a 0.06 m3 support base of C25/30 concrete, 20 mm aggregate size.

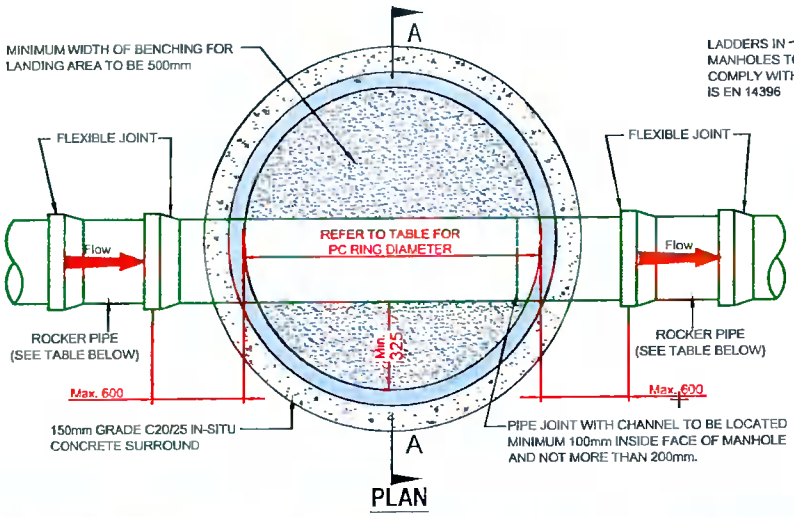
Plastic marker posts shall not be provided under any circumstance. Plastic indicator plates shall not be provided.

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.

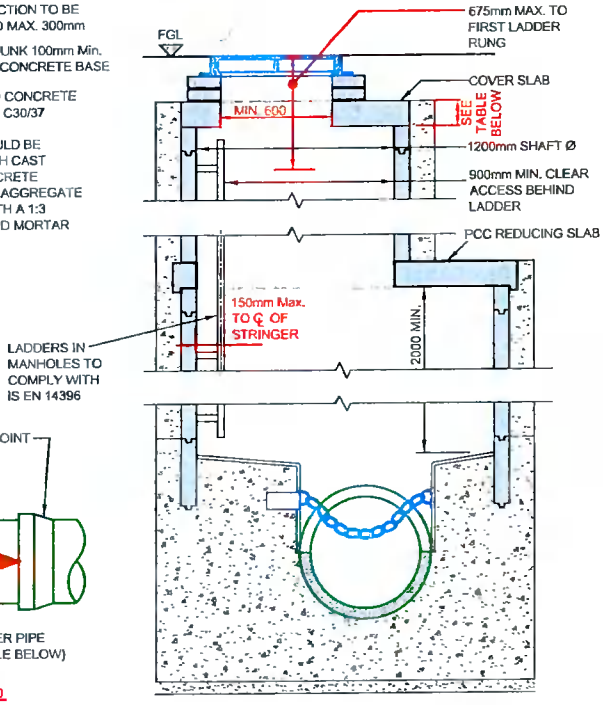
1. ALL DIMENSIONS ARE IN MILLIMETRES (mm) UNLESS NOTED OTHERWISE.
2. PRE-CAST MANHOLES UNITS: COMPLYING WITH REQUIREMENTS OF IS EN 1917 AND IS 420.
3. THICKER MANHOLE BASES REQUIRED FOR SEWERS IN EXCESS OF 3m DEEP WHERE THE SIZE IS GREATER THAN THE STANDARD MINIMUM SIZE.
4. APPROVED PRE-CAST CONCRETE BASES MAY BE USED INCORPORATING CHANNELS, BENCHING ETC. SUBJECT TO IRISH WATER REVIEW AND COMPLYING WITH ISEN 1719 AND 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 DETAILED STRUCTURAL DESIGN AND BE SUBJECT TO IRISH WATER REVIEW.
7. MANHOLE ROOFS SHALL CONSIST OF A RE-INFORCED 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.
8. COVERS 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 WITH 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 ANTI FLOATATION 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. 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. IF DEPTH FROM GROUND TO PIPE SOFFIT IS GREATER THAN 6m DEEP, A SITE SPECIFIC ENGINEERED SOLUTION FOR ACCESS SHALL BE PROVIDED.
16. 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.
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 SAND/CEMENT FINISH TO SUIT FLOW OF INLETS AND OUTLET.



SECTION A-A



PLAN



MANHOLE DETAIL > 3m & < 6m GROUND TO SOFFIT DEPTH

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

MINIMUM MANHOLE DIAMETERS

DIAMETER OF LARGEST PIPE IN MANHOLE (mm)	INTERNAL DIAMETER OF MANHOLE (mm)	MIN. PRECAST ROOF SLAB EFFECTIVE THICKNESS (mm)	MIN. IN-SITU ROOF SLAB THICKNESS (mm)
LESS THAN 375	1200	160	225
375 TO 450	1350	160	225
500 TO 750 *	1500	170	225

ROCKER PIPE LENGTH

PIPE DIAMETER (mm)	ROCKER PIPE LENGTH (mm)
150 TO 600	600
GREATER THAN 600 TO 750 *	1000
GREATER THAN 750 *	1250

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

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

UISCE EIREANN : IRISH WATER

No	Date	Drn	Chk	Description	App
3	07/20	RH	TOC	Notes Updated	MOD
2	11/17	JMC	TOC	Added rocker pipe table, deep manhole detail, added & updated notes	MOD
1	08/16	JMC	TOC	Added steps & revised access ope & cover notes	MOD
0	09/15	JMC	TOC	Initial Issue	SL

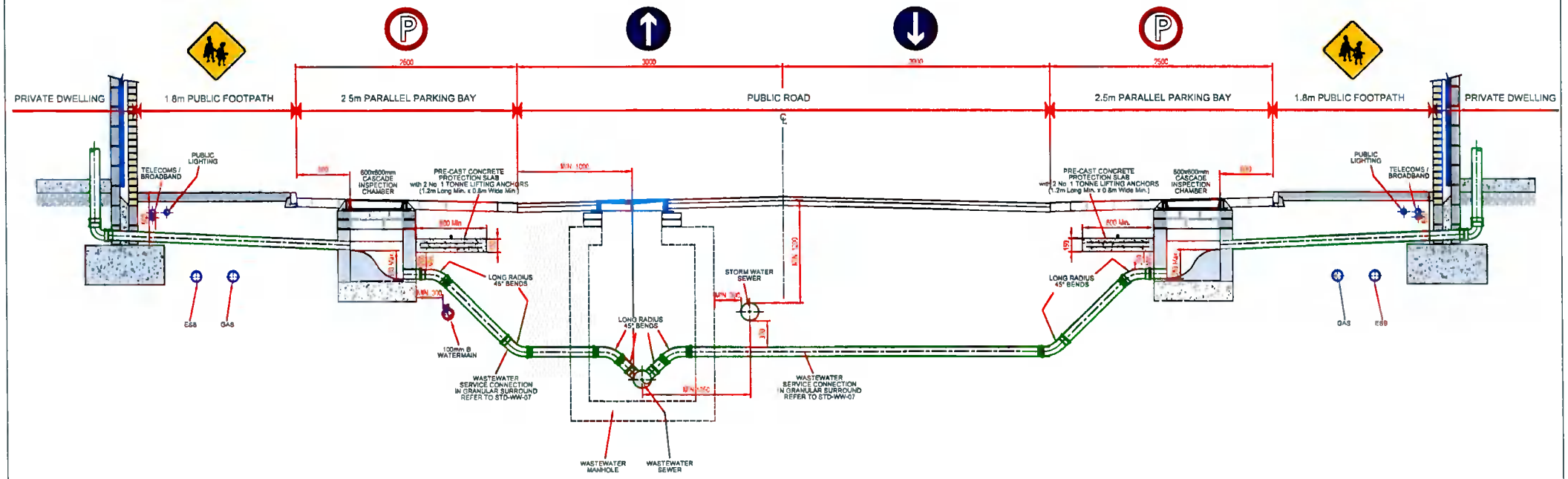
STANDARD DETAILS - WASTEWATER

SCALE: NOT TO SCALE | DATE: SEPT. 2015

TITLE: PRE-CAST CONCRETE MANHOLE WITH CAST IN-SITU BASE

DRAWING No.: STD-WW-10 | REV: 3

1. FOR NOTES REFER TO STD-WW-13
2. CONCRETE SURROUND REQUIRED TO SERVICE CONNECTIONS WITH LESS THAT 1.2m COVER IN TRAFFICKED AREAS.



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

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

UISCE EIREANN : IRISH WATER

No.	Date	Drn	Chk	Description	App
0	07/20	RH	TOC	Initial Issue	MOD

STANDARD DETAILS - WASTEWATER

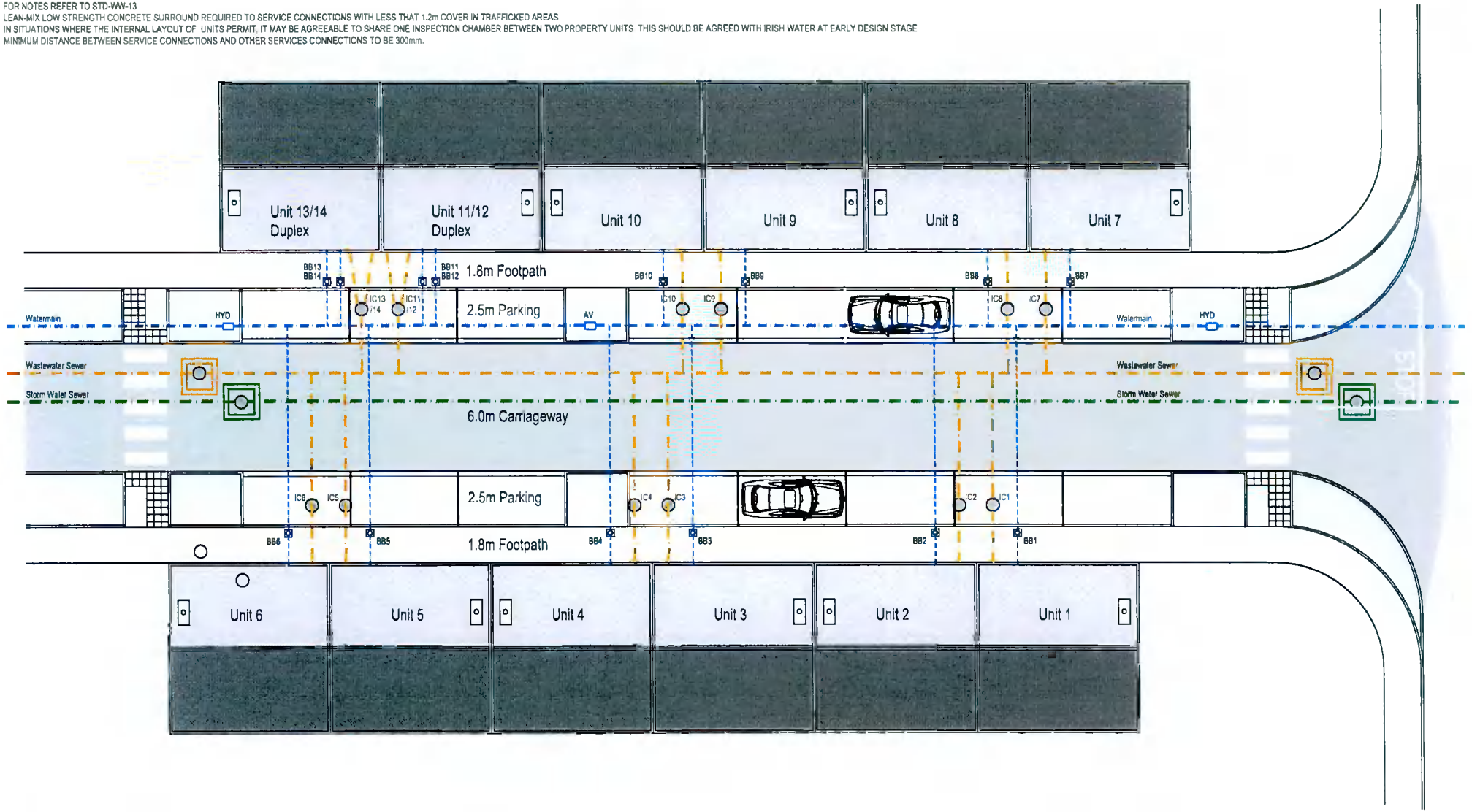
TITLE

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.

SCALE	DATE
NOT TO SCALE	APR 2020

DRAWING No.	REV
STD-WW- 39	0

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

UISCE EIREANN : IRISH WATER

No	Date	Drn	Chk	Description	App
0	07/20	RH	TOC	Initial Issue	MOD

STANDARD DETAILS - WASTEWATER

TITLE

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.

SCALE	DATE
NOT TO SCALE	APR 2020

DRAWING No.	REV
STD-WW-40	0