Specification Guide

Product Group: Manholes, Chambers & Tanks
Product Type: Internal Under-Slab Manholes - **BBA Approved**
Specification: PX-INT-MH-SP-03

Internal Building Under-Slab Manholes & Chambers

Bespoke circular and rectangular manholes chambers for all under-slab and suspended services within the internal footprint of a building or structure, including foul water surface/rain water & chemical trade effluent wastes (TEW). The bespoke manholes will be factory constructed to provide a watertight seal against the ingress of ground water into the manhole and egress of effluent and gaseous waste from the manhole into the surrounding environment and water table.

The manholes will be supplied to site as completed factory prefabricated units, manufactured to suit the consultant's general arrangement drawings. Each manhole will be numbered with an indelible marker to correspond with the drainage layout drawings.

Manhole Detail Drawings

CAD detail drawings of each manhole, based on consultants design, will be submitted by FGS for approval by the client. Drawing details will indicate manhole number, cover level, invert level, drain sizes and falls.

Thermoplastic Materials of Construction

Manholes and internal pipe work either;
Homopolymer Polypropylene Din 8077 & 8078. (PP-H)
High Density Polyethylene Din 8075 & 8074 (HDPE)
Our Chemical corrosion guide is available on request.
Our thermoplastic waste material is 100% recyclable.

Methods of Construction

Thermoplastic welding completed in accordance with BSEN13067- Plastics Welding Personnel, under the Certification Scheme for Welding and Inspection personnel (CSWIP). Approved by the Thermal Welders Institute (TWI).

British Standard Specifications

Rectangular and Circular Manholes will be fabricated to, BS EN13598-2: 2009, BS7158:2001 and comply with BS EN752:2008, Building Regulations section H Table 11 & 12 and Sewers for Adoption.

Branch Connections

The incoming drain connections and backdrops will be configured to suit the drainage system design drawings.

The spigot ends will be supplied as plain end or adapted to suit the connecting drainage system e.g. vitrified clay, PVC, cast iron, ductile iron, HDPE as required. Joint options – mechanical, push fit couplers, flanged or electrofusion.

Internal Benching and Channels

The manholes will be supplied complete with open channel barren bends as standard, or polypropylene bolted inspection covers with gasket seal as indicated on the design drawings.

Benching will be fabricated to a gradient of 1:10 to 1:30 as required and welded from the wall of the chamber to the through drain channel or inspection covers.

Manhole Access Steps

Where required by undertaker refer to Sewers for Adoption.
Bright yellow polypropylene steel core manhole steps to BS EN 13101:2002.
Plastic Encapsulated Manhole Steps WIS 4-33-01:1990.

Access steps will be factory installed into the manhole with welded water tight seal.

Testing

The manholes will be tested at the factory, each branch connection will be fitted with an inflatable bag stopper and the manhole filled with water to confirm 100% water tightness or on larger manholes welds will be spark tested.

CDM Regulations 2007 - Confined Space Regulations 1997

Contrary to traditional manhole construction methods, our manholes eliminate the need for confined space working. By providing an alternative approach, foreseeable health and safety risks are reduced from the outset.

Installation and Loading

For manhole handling & installation refer to our Work Instruction WP34. The manhole chamber shafts and bases are designed to meet the stiffnes**s** requirements (as per BS EN13598-2, BS7158) for installation up to the specified invert depth – up to 1.2m for shallow inspection chambers and 6m for manholes.

FGS to be notified of any requirement for ground up heave. The manholes can be used in areas subject to D400 and F900 loading provided the concrete surround and cover slab are appropriately designed contact us for specific BBA HAPAS certified manhole details.

Operation and Maintenance

When installed to our installation instructions the manholes will operate with minimum maintenance. Due to the nature of the thermoplastic construction materials, the units will resist the build of Fat's, Oil's & Grease (FOG). If rodding is required use polypropylene rods, alternatively the manholes can be pressure jetted to a maximum pressure of 180 bar 2600 psi in accordance with WRc jetting standard.

If alterations are required to the manhole, we will be contacted to discuss the procedure.

Technical Certification

British Board of Agrement (BBA) Certificate No. 02/3927
Water Research Commission (WRC) Cert No.PT/257/0806
British Board of Agrement (BBA) Environmental Profile Cert No. 11/EP1002

Manhole Testing to BS EN13598-2:2009, BS7158:2001

The following tests have been passed by the BBA technical approval certification:
BS EN13598-2 Table 3 Structural integrity test.
BS EN13598-2 Table 2 Durability test .
BS EN13598-2 Table 3 Impact resistance.
BS EN13598-2 Satisfies the step irons pull out and deformation test Table 4.
BS7158 Clause 7.2 and Appendix A - Water tightness of manholes when full of water and when surrounded by water
BS7158 Clause 7.5 and Appendix E - Resistance to thermal cycling
BS7158 Clause 7.6 and Appendix F - Specific tangential initial stiffness (STIS)
BS7158 Clause 7.8 and Appendix I - Negative internal pressure test
BS7158 Clause 7.7 and Appendix G - Vertical load test class A15
BS 1247-2 1990 – Clause 7.3 Step iron pull out test when installed in a FGS manhole.

Additional Testing

BS 1247-2:1990 – Clause 7.2 Step iron bending resistance test when installed within a FGS manhole.
BS EN 1277: 1996 Method 2 condition A - Positive high pressure test 0.5bar on gasket within internal bolted inspection cover plate within FGS manhole.
Note: BS EN 1277:2003 low internal pressure leaktightness test 0.05 bar on gasket within internal bolted inspection cover plate is standard unless the positive high pressure test is specifically required.

Product Options Available: Manhole Shuttering System

Optional recycled HDPE shuttering can be supplied factory fabricated to circular manholes to accept the poured concrete surround. Plywood timber shuttering can be factory installed to rectangular manholes. (nominal 150mm minimum surround)

Manhole Top Formwork and Access Turret

Optional reinforced top formwork with access turret with a clear opening to suit manhole cover and frame welded to manhole to accept insitu poured concrete cover slab. Top reinforcement ribs can be pre-drilled to accept

For Technical Assistance please contact:

NOV Fiber Glass Systems
Devon Enterprise Facility, 1 Belliver Way
Roborough, Plymouth, Devon, U.K.

+44 (0)1752 581200

fgssales@nov.com

02/3927

PT/257/0806

Specification Guide

Product Group: Manholes, Chambers & Tanks
Product Type: Internal Under-Slab Manholes - **Non BBA**
Specification: PX-INT-MH-SP-04

Internal Building Under-Slab Manholes Chambers

Bespoke circular and rectangular manhole chambers for all under- slab and suspended services within the internal footprint of a building or structure, including foul water surface/rain water & chemical trade effluent wastes (TEW).

The bespoke manholes will be factory constructed to provide a watertight seal against the ingress of ground water into the manhole and egress of effluent and gaseous waste from the manhole into the surrounding environment and water table.

The manholes will be supplied to site as completed factory prefabricated units, manufactured to suit the consultant's general arrangement drawings.

Each manhole will be numbered with an indelible marker to correspond with the drainage layout drawings.

Manhole Detail Drawings

CAD detail drawings of each manhole, based on consultants design, will be submitted by FGS for approval by the client. Drawing details will indicate manhole number, cover level, invert level, drain sizes and falls.

Thermoplastic Materials of Construction

Manholes and internal pipe work either;
Homopolymer Polypropylene Din 8077 & 8078. (PP-H)
High Density Polyethylene Din 8075 & 8074 (HDPE)
FGS Chemical corrosion guide is available on request.
FGS thermoplastic waste material is 100% recyclable.

Methods of Construction

Thermoplastic welding completed in accordance with BSEN13067-Plastics Welding Personnel, under the Certification Scheme for Welding and Inspection personnel (CSWIP). Approved by the Thermal Welders Institute (TWI).

British Standard Specifications

Rectangular and Circular Manholes comply with BS752:2008, Building Regulations section H Table 11 & 12 Dimensions for inspection chambers and manholes. The manholes are manufactured to BSEN 12573: 2000 Welded Static Thermoplastic Tanks.

Branch Connections

The incoming drain connections and backdrops will be configured to suit the drainage system design drawings.

The spigot ends will be supplied as plain end or adapted to suit the connecting drainage system e.g. vitrified clay, PVC, cast iron, ductile iron, HDPE as required. Joint options – mechanical or push fit couplers.

Internal Benching and Channels

The manholes will be supplied complete with open channel barren bends as standard, or polypropylene bolted inspection covers with gasket seal as indicated on the design drawings.

Benching will be fabricated to a gradient of 1:10 to 1:30 as required and welded from the wall of the chamber to the through drain channel or inspection covers.

Manhole Access Steps

Where required by the end user, bright yellow polypropylene steel core manhole steps to BS EN 13101:2002.

Plastic Encapsulated Manhole Steps WIS 4-33-01:1990.
Access steps will be factory installed into the manhole with welded water tight seal.

Testing

The manholes will be tested at the factory, each branch connection will be fitted with an inflatable bag stopper and the manhole filled with water to confirm 100% water tightness or on larger manholes welds will be spark tested.

Testing Internal Bolted Inspection Boxes (where applicable)

BS EN 1277:2003 low internal pressure leak tightness test 0.05 bar on gasket within internal bolted inspection cover plate is standard.

High pressure inspection boxes can be provided to suit project specific requirements contact us for further details.

CDM Regulations 2007 - Confined Space Regulations 1997

Contrary to traditional manhole construction methods, our manholes eliminate the need for confined space working. By providing an alternative approach, foreseeable health and safety risks are reduced from the outset.

Installation and Loading

For manhole handling & installation refer to FGS Work Instruction WP34.

FGS to be notified of any requirement for ground up heave. Maximum depth for Non BBA manhole is 3m.

Operation and Maintenance

When installed to our installation instructions the manholes will operate with minimum maintenance.

Due to the nature of the thermoplastic construction materials, the units will resist the build of Fat's, Oil's & Grease (FOG). If rodding is required use polypropylene rods, alternatively the manholes can be pressure jetted to a maximum pressure of 180 bar 2600 psi in accordance with WRc jetting standard.

If alterations are required to the manhole, FGS will be contacted to discuss the procedure.

Product Options Available: Manhole Shuttering System

Optional recycled HDPE shuttering can be supplied factory fabricated to circular manholes to accept the poured concrete surround. Plywood timber shuttering can be factory installed to rectangular manholes. (nominal 150mm minimum surround)

Manhole Top Formwork and Access Turret

Optional reinforced top formwork with access turret with a clear opening to suit manhole cover and frame welded to manhole to accept insitu poured concrete cover slab. Top reinforcement ribs can be pre-drilled to accept steel rebar for casting into slab for suspended manhole/drainage system.

Technical Certification

British Board of Agrement (BBA) Environmental Profile Cert No. 11/EP1002

For Technical Assistance please contact:

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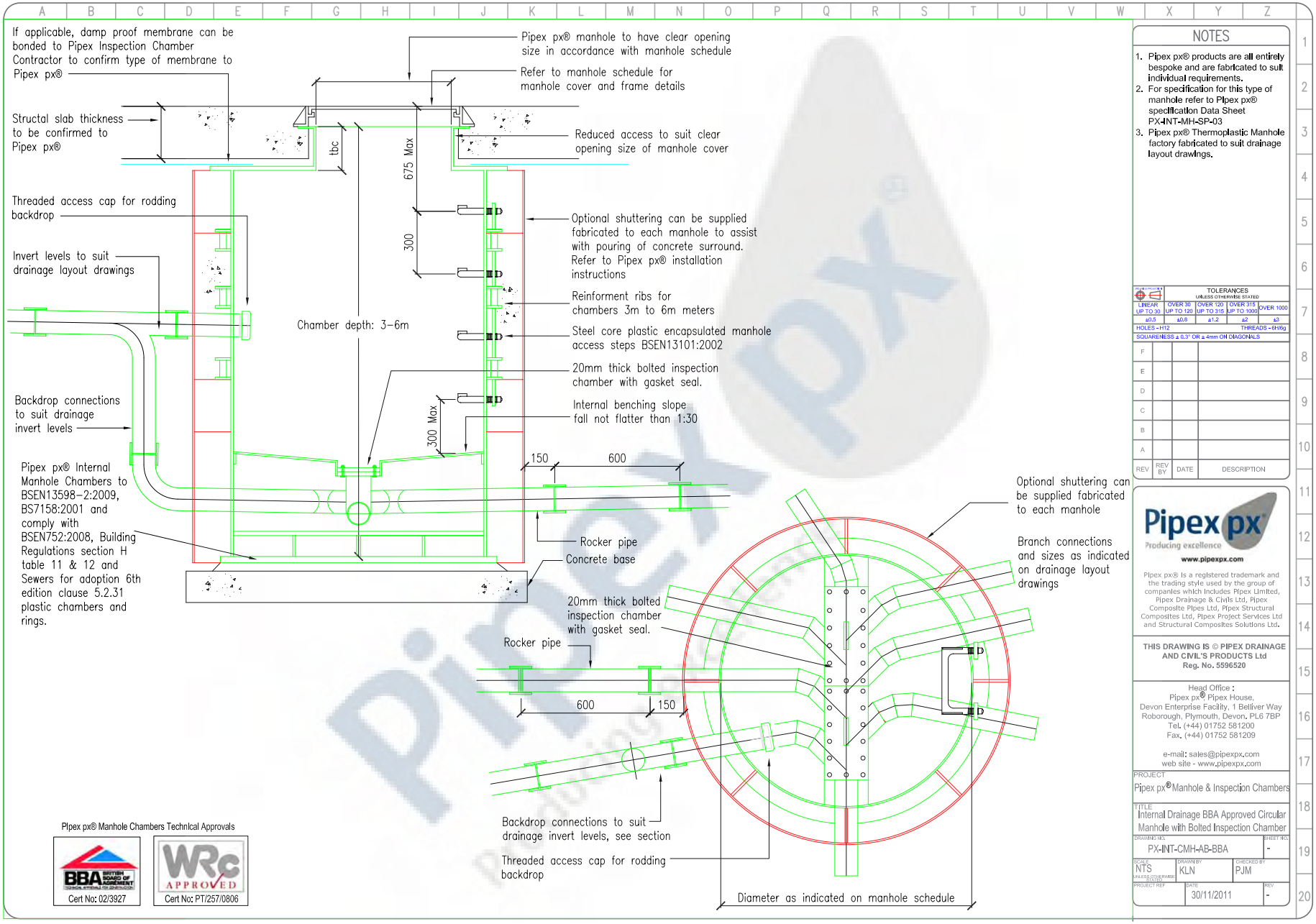
PT/257/0806



NOTES

1. Pipex px® products are all entirely bespoke and are fabricated to suit individual requirements.
2. For specification for this type of manhole refer to Pipex px® specification Data Sheet PX-INT-MH-SP-03
3. Pipex px® Thermoplastic Manhole factory fabricated to suit drainage layout drawings.

TOLERANCES UNLESS OTHERWISE STATED

LINEAR UP TO 30	OVER 30 UP TO 120	OVER 120 UP TO 315	OVER 315 UP TO 1000	OVER 1000
±0.5	±0.8	±1.2	±2	±3

HOLES – H12 THREADS - 6H/6g
SQUARENESS ± 0.3° OR ± 4mm ON DIAGONALS

REV	REV BY	DATE	DESCRIPTION
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e-mail: sales@pipexpx.com
web site - www.pipexpx.com

PROJECT: Pipex px® Manhole & Inspection Chambers

TITLE: Internal Drainage BBA Approved Circular Manhole with Bolted Inspection Chamber

DRAWING NO.	SHEET NO.
PX-INT-CMH-AB-BBA	-

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PROJECT REF	DATE	REV
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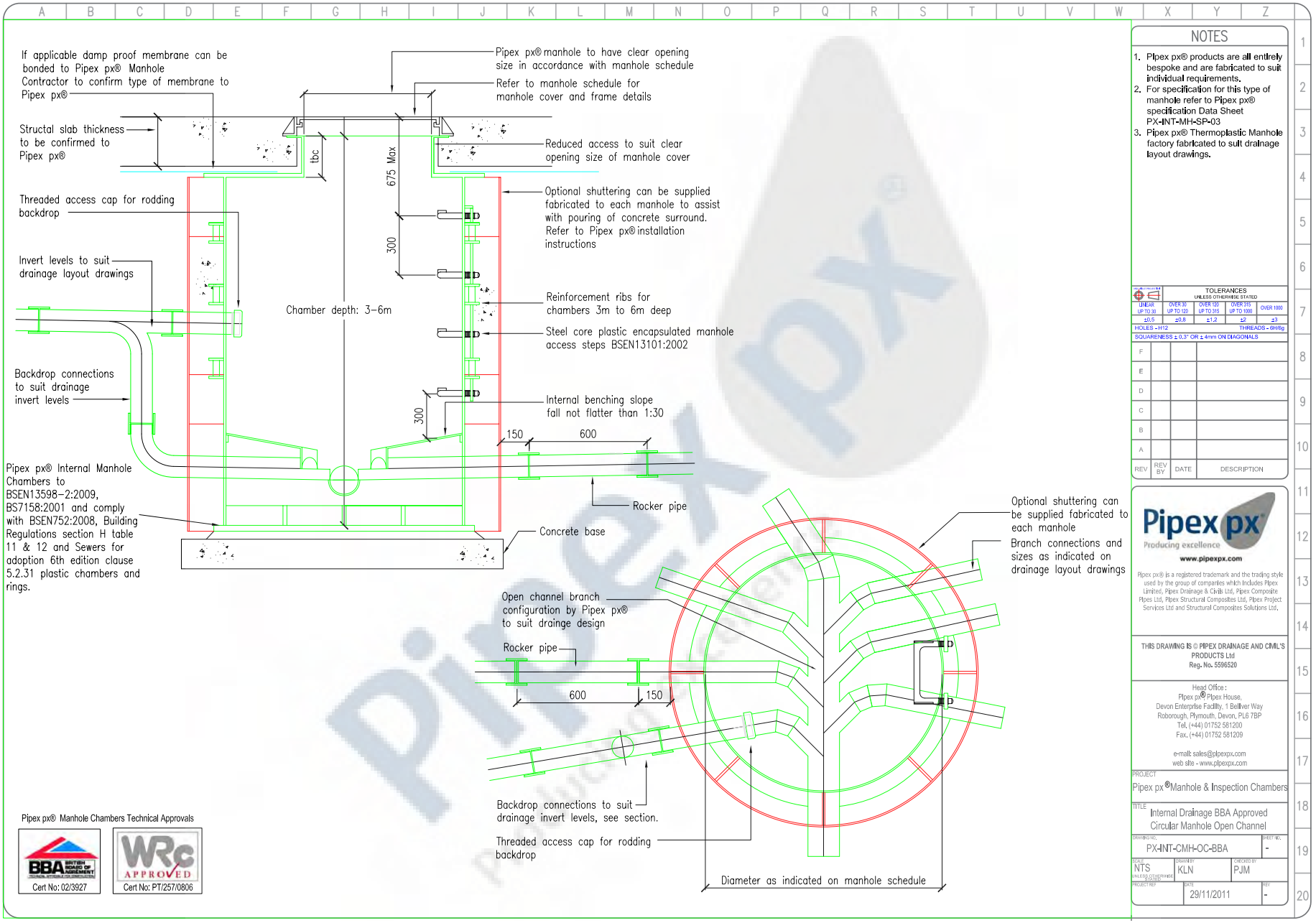

Pipex px® Manhole Chambers Technical Approvals

BBA Cert No: 02/3927

WRc APPROVED Cert No: PT/257/0806

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3. Pipex px® Thermoplastic Manhole factory fabricated to suit drainage layout drawings.

TOLERANCES UNLESS OTHERWISE STATED

LINEAR UP TO 30	OVER 30 UP TO 120	OVER 120 UP TO 315	OVER 315 UP TO 1000	OVER 1000
±0,5	±0,8	±1,2	±2	±3

HOLES - H12 THREADS - 6H/6g
SQUARENESS ± 0,3° OR ± 4mm ON DIAGONALS

REV	REV BY	DATE	DESCRIPTION
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D			
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web site - www.pipexpx.com

PROJECT: Pipex px® Manhole & Inspection Chambers

TITLE: Internal Drainage BBA Approved Circular Manhole Open Channel

DRAWING NO.	SHEET NO.
PX-INT-CMH-OC-BBA	-

SCALE UNLESS OTHERWISE STATED	DRAWN BY	CHECKED BY
NTS	KLN	PJM

PROJECT REF	DATE	REV
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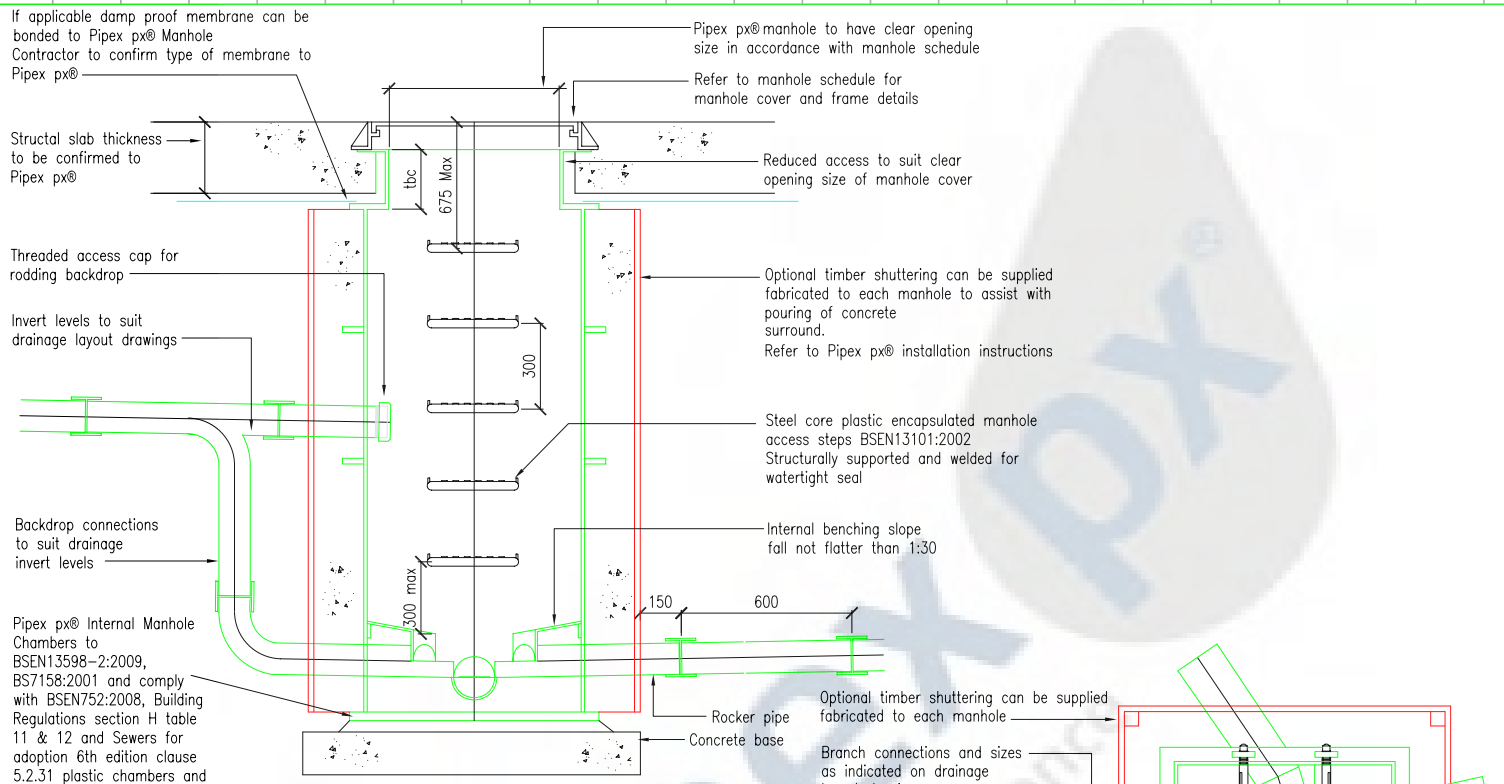

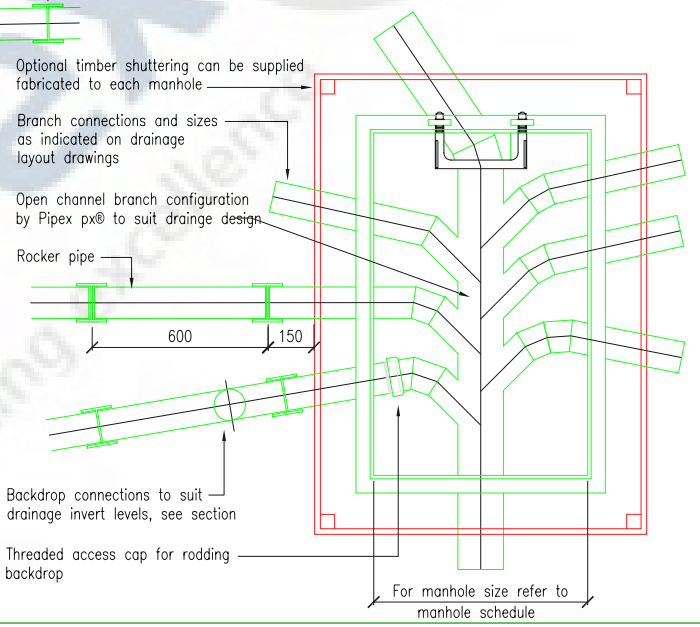

Pipex px® Manhole Chambers Technical Approval

BBA Cert No: 02/3927

WRc APPROVED Cert No: PT/257/0806

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2. For specification for this type of manhole refer to Pipex px® specification Data Sheet PX-INT-MH-SP-03
3. Pipex px® Thermoplastic Manhole factory fabricated to suit drainage layout drawings.

TOLERANCES UNLESS OTHERWISE STATED				
LINEAR UP TO 30	OVER 30 UP TO 120	OVER 120 UP TO 315	OVER 315 UP TO 1000	OVER 1000
±0.5	±0.8	±1.2	±2	±3
HOLES - H12			THREADS - 6H/6g	
SQUARENESS ± 0.3° OR ± 4mm ON DIAGONALS				

REV	REV BY	DATE	DESCRIPTION
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web site - www.pipexpx.com

PROJECT: Pipex px® Manhole & Inspection Chambers

TITLE: Internal Drainage BBA Approved Rectangular Manhole Open Channel

DRAWING NO.	SHEET NO.
PX-INT-RMH-OC-BBA	-

SCALE (UNLESS OTHERWISE STATED)	DRAWN BY	CHECKED BY
NTS	KLN	PJM

PROJECT REF	DATE	REV
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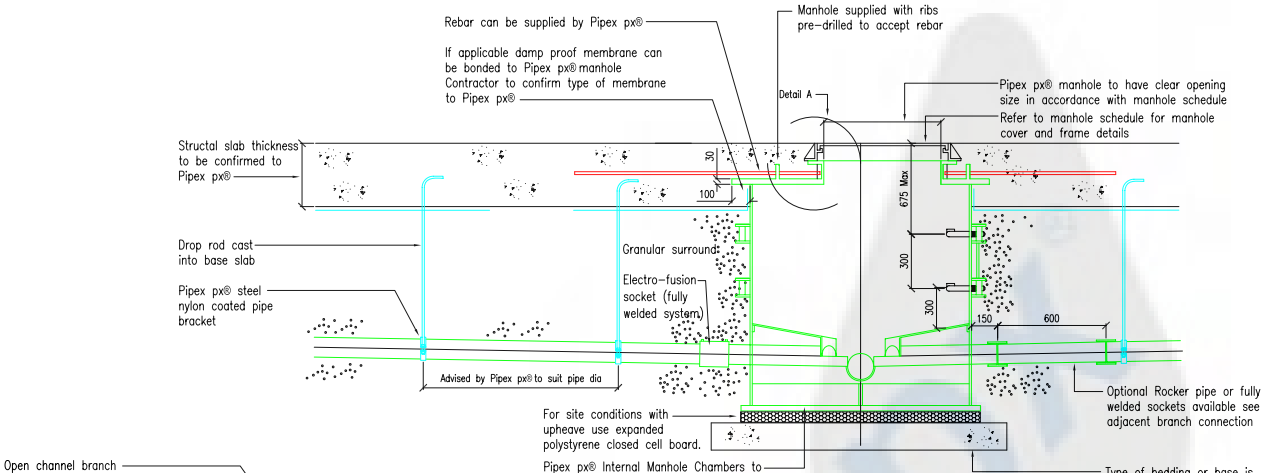

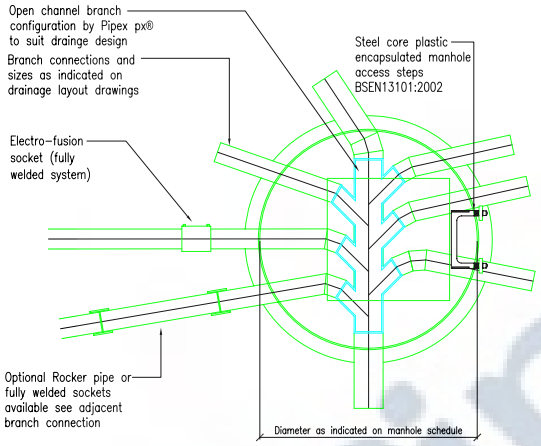

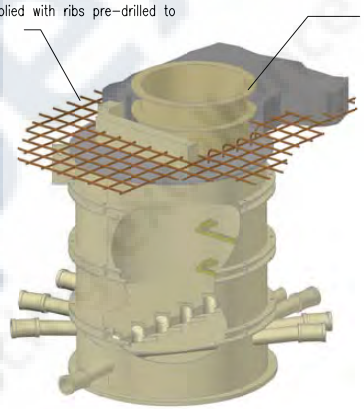

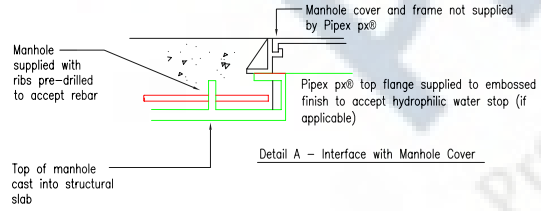

Detail A – Interface with Manhole Cover

Pipex px® Manhole Chambers Technical Approvals

BBA Cert No: 02/3927

WRc APPROVED Cert No: PT/257/0806

NOTES

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2. For specification for this type of manhole refer to Pipex px® specification Data Sheet PX-INT-MH-SP-03
3. Pipex px® Thermoplastic Manhole factory fabricated to suit drainage layout drawings.

TOLERANCES UNLESS OTHERWISE STATED				
LINEAR	OVER 30 UP TO 30	OVER 120 UP TO 315	OVER 315 UP TO 1000	OVER 1000
±0.5	±0.8	±1.2	±2	±3
HOLES - H12			THREADS - 6H/6g	
SQUARENESS ± 0.3° OR ± 4mm ON DIAGONALS				

REV	REV BY	DATE	DESCRIPTION
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e-mail; sales@pipexpx.com
web site - www.pipexpx.com

PROJECT: Pipex px® Manhole & Inspection Chambers

TITLE: Internal Suspended Manhole Open Channel

DRAWING NO.	SHEET NO.
PX-INT-SUS-CMH	-

SCALE	DRAWN BY	CHECKED BY
NTS	KLN	PJM

PROJECT REF	DATE	REV
	01/12/2011	-