## FOUL WATER MANHOLE SCHEDULE

Manhole Ref.	Cover Level (m)	Invert Level (m)	Backdrop Invert Lvl (m)	Manhole Depth (m)	Manhole Type	Manhole Ø (mm)	Cover/Frame Grade	Remarks
MHF1.0	9.250	8.650	-	0.600	Type 4	300	A15	-
MHF1.1	9.250	8.404	-	0.846	Туре 3	450	A15	-
MHF1.2	9.250	7.745	-	1.505	Туре 3	450	B125	Built on line of existing public foul sewer
MHF2.0	9.250	8.650	-	0.600	Type 4	300	A15	-

FOUL WATER PIPE SCHEDULE										
Pipe Ref.	Pipe Length (m)	Pipe Ø (mm)	Pipe Material	Gradient (1 in ?)	Bedding	Remarks				
PNF1.0	4.83	100	UPVC	19.6	Class S	-				
PNF1.1	3.14	100	UPVC	5.2	Class S	-				
PNF2.0	7.82	100	UPVC	40	Class S	-				

## SURFACE WATER MANHOLE SCHEDULE

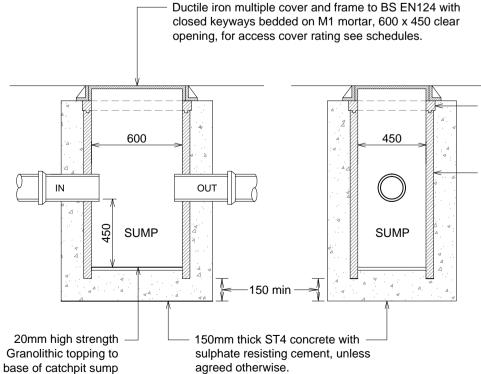
	Manhole Ref.	Cover Level (m)	Invert Level (m)	Backdrop Invert LvI (m)	Manhole Depth (m)	Manhole Type	Manhole Ø (mm)	Cover/Frame Grade	Remarks	
	MHS1.0	9.250	8.650	-	0.600	Type 4	300	A15	-	
	MHS1.1	9.250	8.583	-	0.667	Туре З	450	A15	-	
	MHS1.2	9.250	IN=8.402 OUT=8.402 SL=7.952	-	IN=0.848 OUT=0.848 SL=1.298	PCC RECT Catchpit	600x450	B125	-	
	MHS2.0	9.250	8.750	-	0.500	Type 4	300	A15	-	

SURFACE WATER PIPE SCHEDULE										
Pipe Ref.	Pipe Length (m)	Pipe Ø (mm)	Pipe Material	Gradient (1 in ?)	Bedding	Remarks				
PNS1.0	4.00	100	UPVC	60	Class S	-				
PNS1.1	10.82	100	UPVC	60	Class S	-				
PNS1.2	4.08	150	UPVC	60	Class S	-				
PNS2.0	8.5	100	UPVC	24	Class S	-				

Soakaway Ref.	Cover / Ground Level (m)	Inlet Level(s) (m)	Inlet Depth(s) (m)	Remarks
SA1	9.250	8.330	0.920	Soakaway constructed using Wavin Aquacell blocks or similar approved product (Individual block dimensions: L=1.0m x W=0.5m x D=0.4m) <u>Soakaway Structure Dimensions</u> Length = ?m (? Blocks) Width = ?m (? Blocks) Depth = ?m (? Layers of Blocks) Inlet to be located at high level into soakaway structure

# PCC Catchpit (600x450mm)





Light duty cover slab 600x450 opening

150mm surround of ST4 concrete to 600x450x152 PCC rectangular manhole sections by Milton Precast or similar approved.

PCC sections suitable for up to 150mm diameter pipes only.

Chamber sections to be built into base by min 75mm.

# Typical Type 3 Chamber Detail (Non-Entry)

• Maximum depth of cover level to soffit of pipe 3.0m • For individual access cover grades see schedules.

scale 1:25

Mortar bedding and haunching to cover and frame to Clause E6.7.

NOTE: Shaft to be temporarily capped during construction

NOTE: Access opening restricted to 350mm diameter or 300mm x 300mm through use of reducing piece if depth of chamber to invert exceeds 1.0m.

> Joints between base and shaft and between shaft components to be fitted with

Joint to be as close as possible to face of chamber to permit satisfactory joint and subsequent movement

NOTE:

Clause E6.6 - Pipes and Joints Adjacent to Structures 1. Where rigid pipes are used, a flexible joint (rocker pipe) shall be provided as close as is feasible to the outside face of any structure into which a pipe is built, within 150mm for pipe diameters less than 300mm. The design of the joints shall be compatible with any subsequent movement.

2. The recommended length of the next pipe (rocker pipe) away from the structure shall be as shown in Table E.12.

Table E.12 Rocker Pipes	
Nominal Diameter	

(mm)	F
150	

Clause E6.7 - Setting Manhole Covers and Frames

Clause: E2.32 Manhole Covers and Frames

3. As a minimum, Class D400 covers shall be used in carriageways of roads (including pedestrian streets), hard shoulders and parking areas used by all types of road vehicles.

## **Typical Type 4 Chamber Detail (Non-Entry)** scale 1:20

 Max depth from cover to soffit of pipe 2.0m • For individual access cover grades see schedules.

Cover complying with BS EN 124 and BS 7903, see Clause E2.32.

DOT Type 1 sub-base or concrete surround to chamber units -

Minimum radius to be 500mm for a 100mm diameter pipe and 600mm for a 150mm pipe to allow entry of maintenance equipment

Joints between base and shaft and shaft components to be fitted with watertight seals and be located as close as possible to create a satisfactory joint and allow subsequent movement.

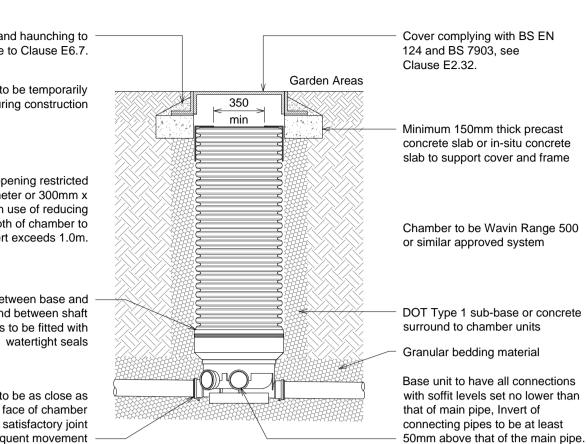
Granular bedding material

NOTE:

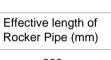
- 2. Backfill to be well compacted around shaft of chamber.
- Clause: E2.32 Manhole Covers and Frames
- excessive surface water ingress.

3. As a minimum, Class D400 covers shall be used in carriageways of roads (including pedestrian streets), hard shoulders and parking areas used by all types of road vehicles.

**Clause: E6.7 Setting Manhole Covers and Frames** 



Plastic chambers and rings in areas subject to vehicle loading shall comply with BS EN 13598-2, in all other areas they are to comply with BS EN 13598-1 or BS EN 13598-2 or have equivalent independent approval.



1. Stub pipes into structures shall be of rigid material. 2. No incoming branch is to be less than 90° from the outgoing



direction of flow, all pipes entering the bottom of the manhole are to have level soffits.

Text taken from Figure B.14

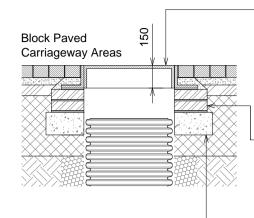
1. Manhole frames shall be set to level, bedded and haunched externally over the base and sides of the frame in mortar, in accordance with the manufacturers instructions.

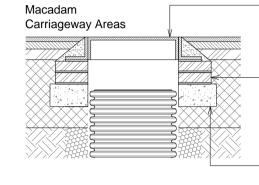
1. Manhole covers and frames shall comply with the relevant provisions of BS EN124, BS7903 and Highways Agency Guidance Document HA 104/09. They shall be of a non-rocking design which does not rely on the use of cushion inserts.

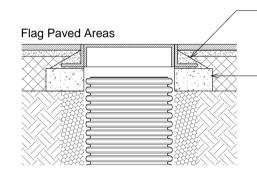
2. Manhole covers on foul-only sewers shall be of low leakage types in order to prevent excessive surface water ingress.

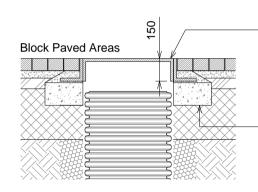
# **Type 3 Alternate Cover Details**

scale 1:25 All covers to comply with BS EN 124 and BS7903, see Clause E2.32. All covers to have mortar bedding and haunching to cover and frame to Clause E6.7









## Manhole cover to suit BS EN 124. Cover to have 600mm x 600mm clear opening.

NOTE: Covers on adoptable manholes in block paved areas to have non 'In-fill' type covers with a minimum depth of frame of 150mm.

Class B engineering brickwork or precast concrete cover frame seating rings bedded on M1 mortar for chambers located in carriageways or subject to heavy vehicle loading.

Minimum 150mm thick precast concrete slab or in-situ concrete slab to support cover and frame

Manhole cover to suit BS EN 124. Cover to have 600mm x 600mm clear opening.

Class B engineering brickwork or precast concrete cover frame seating rings bedded on M1 mortar for chambers located in carriageways or subject to heavy vehicle loading.

Minimum 150mm thick precast concrete slab or in-situ concrete slab to support cover and frame

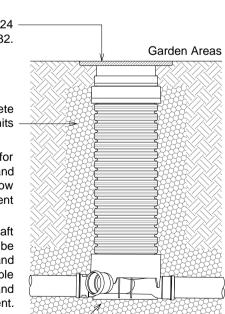
Mortar bed and haunching to frame

150mm deep concrete collar

NOTE: Covers on adoptable manholes in flag paved areas to have non 'In-fill' type covers with a minimum depth of frame of 150mm.

NOTE: Covers on adoptable manholes in block paved areas to have non 'In-fill' type covers with a minimum depth of frame of 150mm.

150mm deep concrete collar



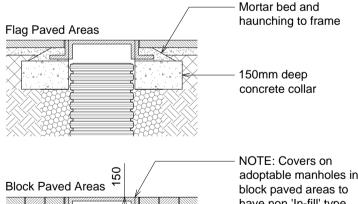
## of Inlet/Outlet pipes is 45°

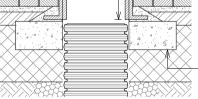
Unused inlets are to be sealed and made watertight.

Where chambers are positioned on 90° corners, always use the main channel by fitting 45° bends on both inlet and outlet pipes.

# Type 4 - Alternate Cover Details

All covers to comply with BS EN 124 and BS 7903, see Clause E2.32. All covers to have mortar bedding and haunching to cover and frame to Clause E6.7





Macadam Areas

scale 1:20

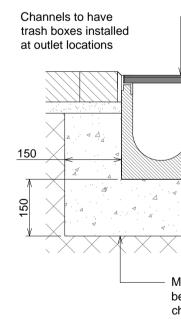
have non 'In-fill' type covers with a minimum depth of frame of 150mm.

150mm deep concrete collar

Mortar bed and haunching to frame

150mm deep concrete collar

## Channel Drain Detail scale 1.10



1. Plastic chambers and rings shall comply with BS EN 13598-1 or BS EN 13598-2 or have equivalent independent approval.

1. Manhole covers and frames shall comply with the relevant provisions of BS EN124, BS7903 and Highways Agency Guidance Document HA 104/09. They shall be of a non-rocking design which does not rely on the use of cushion inserts.

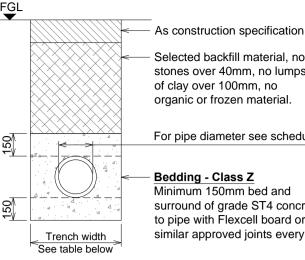
2. Manhole covers on foul-only sewers shall be of low leakage types in order to prevent

1. Manhole frames shall be set to level, bedded and haunched externally over the base and sides of the frame in mortar, in accordance with the manufacturers instructions.

## Chamber to be Wavin Range 315 or similar approved system Maximum deviation angle

# Pipe Bedding - Class Z

Areas subject to vehicle loadings. Less than 1.2m cover to pipe.



of clay over 100mm, no organic or frozen material. For pipe diameter see schedule

- Selected backfill material, no

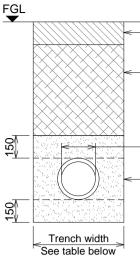
stones over 40mm, no lumps

Bedding - Class Z Minimum 150mm bed and surround of grade ST4 concrete to pipe with Flexcell board or similar approved joints every 1.8m

# **Pipe Bedding - Class S**

Areas not subject to vehicle loadings. Use in private gardens, landscaped areas etc.

**PIPE BEDDING MATERIAL - CLASS S** 



— As construction specification or to landscape consultants details. Selected backfill material, no stones over 40mm, no lumps of clay over 100mm, no

organic or frozen material. For pipe diameter see schedule

Bedding - Class S Minimum 150mm bed and cover to pipe, see table opposite for aggregate size.

# Pipe Bedding - Class S Areas subject to vehicle loadings.

Greater than 1.2m cover to pipe.

FGL				
_		<ul> <li>As construction specification</li> </ul>	Pipe Ø (mm)	Suitable Materials: (Aggregate to BS 882)
		<ul> <li>Selected backfill material, no stones over 40mm, no lumps of clay over 100mm, no organic or frozen material.</li> </ul>	100	10mm nominal single sized aggregate
300		300mm class 8 lower trench – fill material to clause 503.3iv	150	10 to 14mm nominal single sized aggregate
150		For pipe diameter see schedule	225 to 525	10 to 14mm or 20mm nominal single sized aggregate
150		<ul> <li>Bedding - Class S</li> <li>Minimum 150mm bed and</li> <li>cover to pipe, see table</li> <li>opposite for aggregate size.</li> </ul>	Over 525	10, 14 ,20 or 40mm nominal single sized crushed rock
	Trench width See table below			

Pipe surround material shall where required, be placed and compacted over the full width of the trench in layers not exceeding 150mm before compaction, to a finished thickness of 300mm above the crown of the pipe.

Where excavations have been supported and the supports are removed they shall be withdrawn progressively as backfilling proceeds in a manner that minimises the danger of collapse, all voids formed behind the supports are to be carefully filled and compacted.

Pipe jointing surfaces and components shall be kept clean and free from extraneous matter until the joints have been made or assembled, care should be taken to ensure that there is no ingress of grout or other material into the joint after the joint has been made.

Pipes should be cut in accordance with the manufacturers recommendations to provide a clean square profile without splitting or fracturing the pipe wall and to ensure minimal damage to any protective coatings, where necessary, the cut ends of pipes shall be formed to the tapers and chamfers suitable for the type of joint to be used.

TRENCH WIDTH

Pipe

Ø (mm)

100

150

225

300

375

450

525

600

750

900

1050

Trench

Width (mm)

450

450

600

600

750

750

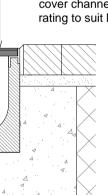
900

900

1200

1350

1500



Ductile Iron grating to cover channel, cover rating to suit location.

Minimum 150mm thick bed and surround to channel drain

## DRAINAGE NOTES

- The location of any existing drains and sewers are to be accurately located and reported
- prior to any work commencing on site. • All materials, workmanship and construction to be in accordance with the requirements of
- 'Sewers for Adoption 7th Edition' and published addendum and corrigendum. Channel drains shown are only to collect surface water run-off from hard paved areas and
- door thresholds and are not intended to collect groundwater or run-off from gardens and landscaped areas.
- All abandoned pipework to be completely removed or grout filled unless stated otherwise. NOTES

- The Contractor should check all dimensions on site.
- It is the Contractors responsibility to ensure compliance with building regulations and current codes of practice. • Drawings cannot take into account any drains or underground works not locatable by visual
- survey of the site. • Commencement of any building works prior to full building regulation approval is entirely at the clients risk.

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00	First issue to client		03/02/2	020
Rev	Description		Date	
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- <sub>DRAW</sub> Propo Shee	osed Drainage Details	As Noted	03/02/2020	A1
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