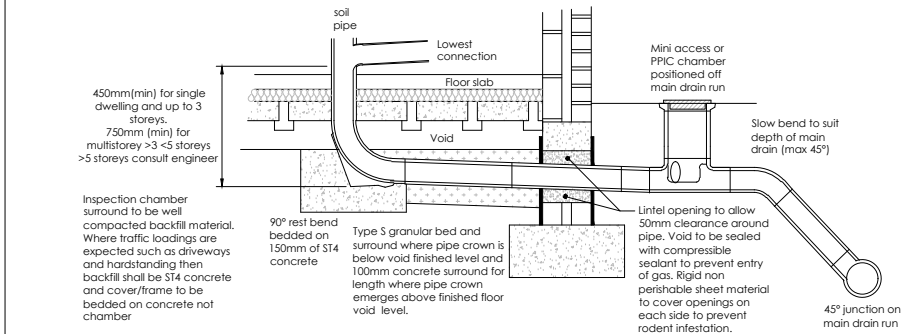
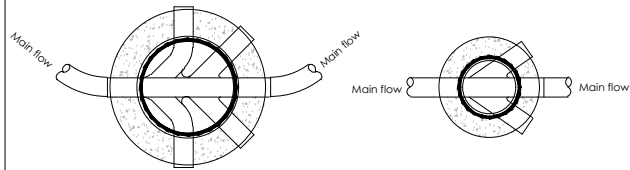


1. All private drainage must comply with the current edition of DTR Building Regulations approved document H.
2. Where drainage is to be adopted it should meet with the requirements of Ofwat Code for Adoptions.
3. Drainage design to be to BS EN 752:2017
4. Any intended changes to the drainage design must be discussed with the Engineer. If changes are made the Engineer must be supplied with as-constructed information to enable drawings to be suitably updated for the Health & Safety file.
5. Before works commence the contractor should satisfy themselves that the details of the drainage system to be connected into are correct i.e. cover, invert levels, line, condition and type of sewer.
6. Private access chambers are to be appropriate to the depths and loadings as follows:-

- All manholes shall have a flexible joint within 150mm of the face of the structure and a "rocker pipe" which should not exceed 600mm in length.
8. Pipe materials shall be:
 - Vitrified clayware to BS EN 295
 - Cast iron to BS EN 120010
 - UPVC - BS EN 1401 PP - BS EN 1852
 - Structure wall - BS EN 13476
9. For private sewers having 900mm or less cover beneath carriageways & hardstanding or 600mm in landscape areas then they shall have concrete surround or slab protection. Slab protection shall be 100mm thick concrete slab with mesh reinforcement and a bearing of 150mm each side of the trench. Concrete surround to be 150mm C20 with flexible joints.
10. Trenches within 1.2m of load bearing walls should be filled with concrete at least to the underside of the foundation. Where the distance is more than 1.2m from the foundations the concrete should be taken at least up to a 45degree line from the bottom of the trench. Alternatively the foundations could be taken to a deeper level to avoid undermining by the drainage trench (check with the Engineer where this is required).
11. Pipe bed and surround to be granular Type 5 unless otherwise noted.
12. Drains passing through walls or foundations should have either an arched or inletted opening to give 50mm clearance around the pipe. The opening shall be masked both sides with a rigid non-permeable material. Alternatively a short length of pipe may be built in situ if it is connected within 150mm to rocker pipes (max 600mm long) with flexible joints.
13. Drainage under buildings should be bedded and surrounded by at least 100mm of granular material.
14. Unless otherwise stated on the drawings or in the schedules then all private drainage shall be 150mmØ and surrounded with 150mm C20 concrete surround.
15. All road gully connections to be 150mmØ and surrounded with 150mm C20 concrete surround.
16. Where schemes require soakaways they shall not be positioned closer than 5m from the nearest dwelling or structure. Where soakaway systems can be used the underlying strata such as chalk then this distance will need to be increased to 10m.
17. New connections to existing public sewers should be carried in accordance with appropriate Section 106 (Water Industry Act) 'connection consent' and also under the supervision of the Water Authority.
18. Covers shall be to B.S. EN 124-2:2015
 - Class A15 - areas where only pedestrians have access.
 - Class B125 - for use in areas where the pedestrian areas where occasional vehicular access is likely.
 - Class C250 - areas where not extending more than 500mm from kerb face into the carriageway
 - Class D400 - areas where cars and lorries have access including carriageways, hard shoulders.
- Cover and frames to be 150mm deep except residential cul-de-sacs
19. It is recommended that drainage works should be constructed from the outfall particularly where the outfall depth is relatively shallow. If it is not possible to commence works from the outfall the contractor should satisfy themselves that the invert, line, position and type of existing outfall are correct.
20. Drainage works should be protected from possible damage by construction traffic loadings during the construction period. Protection may be provided by barriers, materials should not be stored over drainage works.
21. Buildings up to 3 storeys shall have a bend at the base of the soil stack 450mm min below the invert of the lowest incoming drain. Buildings over 3 storeys must be a minimum of 750mm below the lowest incoming drain. Buildings over 5 storeys then the ground floor drainage connections have their own connections to the external drain.
22. Where piling works are undertaken the positions of existing sewers must be accurately located before piling takes place.



MINI ACCESS CHAMBER



Chamber Type	Internal Diameter (mm)	Max. No. Inlets	Max. Depth (mm)
Polypropylene Mini Access Chamber (mac)	300	3	600
Polypropylene Inspection Chamber (PPIC)	475	5	1200

- Where chambers are positioned on 90° corners always use the main channel by fitting a 45° angle bend on the inlet and outlet.
- Bends up to a max 45° angle can be used on any inlet
- Heaviest flow should always be directed through the main channel.
- Short steep connections should preferably be connected via a 45° inlet using a bend where necessary.
- In buildings up to 3 storeys the rest bend at the base of the soil stack should be 450mm below the invert of the lowest incoming drain. In buildings over 3 storeys this should be increased to 750mm. In buildings over 5 storeys the ground floor drainage connectors should have their own connections to the external drain.

Nominal Bore of Pipe (mm)	Alternative Aggregate Sizes (mm)		CF Value Max
	Single-Sized	Graded	
100-150	10	-	0.2
225-300	10 or 14	14 to 5	0.2
375-525	10, 14 or 20 14 or 20	14 to 5 or 20 to 5	0.2
Exceeding	14, 20 or 40	14 to 5, 20 to 5 or 40 to 5	0.15 0.5

[illegible]

CONCRETE SLAB PROTECTION

To be used where cover to pipe soffit is greater than 900mm in vehicular areas and greater than 600mm in non-trafficked areas (ie footpaths, verges, etc)

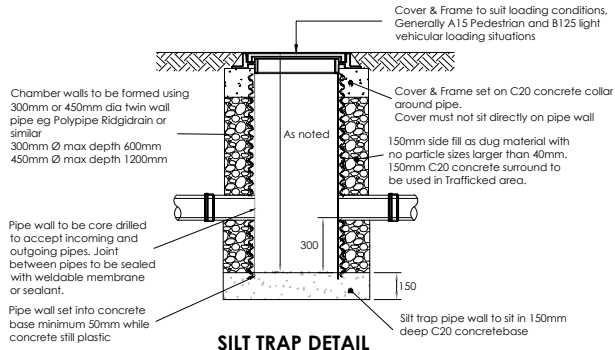
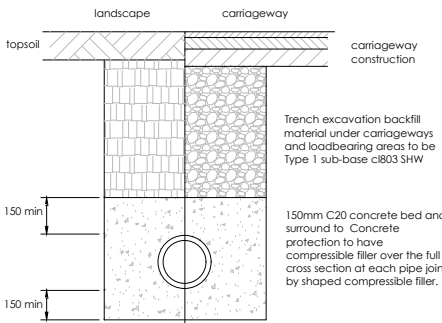
To be used where cover to pipe soffit is less than 900mm in vehicular areas and 600mm in non-trafficked areas (ie footpaths, verges, etc)

Pipe nominal size (DN)	Pipe Bedding Requirement (mm)
100	10 nominal single size
over 100 to 150	10 or 14mm nominal single size or 14mm to 5mm graded
over 150-300	10, 14 or 20mm nominal single size or 14mm to 5mm graded or 20mm to 5mm graded 20mm to 5mm graded
over 300 to 550	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded
over 550	14, 20 or 40mm nominal single-size crushed rock or 14mm to 5mm graded or 20mm to 5mm graded or 40mm to 5mm graded

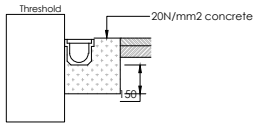
GRANULAR BEDDING AND SIDEFILL MATERIAL GRADINGS

PIPE DIA	TRENCH WIDTH	Tw
150	600	
225	700	
300	750	
375	1050	
450	1150	
525	1200	
600	1350	
675	1450	
750	1500	
825	1600	
900	1900	
1050	2050	
1200	2300	

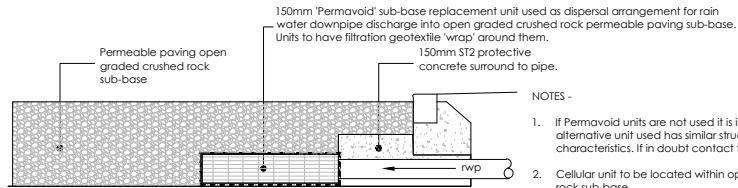
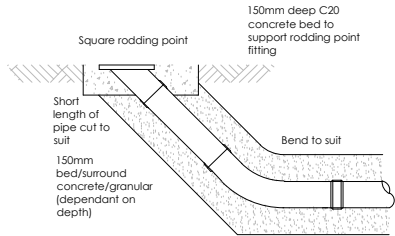
to be used where cover to pipe som is less than 700mm in vehicular areas and 600mm in non-trafficked areas (ie footpaths, verges, etc)



TYPICAL DRAINAGE CHANNEL DETAIL



Rodding Eye Installation



NOTES -

1. If permeoid units are not used it is important that the alternative unit used has similar structural strength characteristics. If in doubt contact the Engineer.
2. Cellular unit to be located within open graded crushed rock sub-base.
3. Last chamber upstream of discharge units must be a catchpit to prevent silt and debris from entering discharge unit.
4. Where the invert level of the discharge unit is below the formation level of the open graded sub-base then local deepening of the sub-base should take place to give a minimum surround of 300mm each side and bed of 100mm. A filtration geotextile should be placed at the new formation level beneath the discharge unit.

1. All dimensions and levels are in metres unless otherwise noted
2. This drawing is to be read in conjunction with the relevant Architect/Engineer's drawings, specifications and CDM documentation
3. This drawing has been produced electronically and may have been photo reduced or enlarged when copied. Work to figured dimensions only (DO NOT SCALE - EXCEPT FOR PLANNING PURPOSES). All dimensions to be checked on site. Any errors or omissions to be reported to the engineer immediately.
4. This drawing contains coloured lines / information that may not be clear if reproduced in black and white.
5. Digital copies of this plan can only be considered accurate if supplied directly by Infrastructure CS Ltd.

P01	R51	MBD	Initial issue	01/05/25			
REV	DRAWN	CHECK	REVISION COMMENTS	ISSUE DATE			
DRAWING TITLE				SHEET NO.			
Typical Drainage Details				1/1			
PROJECT							
Orchid House 236 Reading Road Winnersh, RG41 5AA							
CLIENT							
Holtman and Newman Architects		Infrastruct CS Ltd					
SCALE @ A1				ENGINEER			
Not To Scale				BMK			
				DRAFT			
				NJ			
PROJECT NUMBER	STATUS	ISSUE PURPOSE		APPROVED			
6392	S2	INFORMATION		MBD			
PROJECT	ORIGIN	PHASE	LEVEL	TYPE	ROLE	NO.	REVISION
ORCH	ICS	01	XX	DR	C	0400	P01