



ADOPTABLE DRAINAGE (YORKSHIRE WATER) NOTES

- No work should commence on site until written approval is received from Yorkshire Water/Adopting Highway Authority or any relevant Authority. Works undertaken prior to approval are at the Developer's risk and ID Civils Design will not be held responsible for subsequent delays to approvals, remedial costs or construction programme delays.
- All adoptable sewer works and materials to be in accordance with "Sewers for Adoption" (6th Edition), the relevant British/European and Yorkshire Water's Standards/Requirements/Addendum to the Mechanical and Electrical Specification and "Kitemarked".
- Manhole covers shall have a clear opening of 600 x 600mm and shall be Class D400 to BS EN 124 with 150mm deep frames in highways.
- Bedding and Backfill material to conform to the requirement of Water Industry Specification 4-08-02 (Table A2).
- The adoptable sewers should be a minimum of 1.0m and manholes 0.5m from kerb faces and service margins.
- Sewers must have 5 metres clearance from trees and hedges (refer to Figure 2.3 page 33 "Sewers for Adoption" 6th Edition for restrictions on tree planting adjacent to sewers).
- Sewers to be laid in Class 5 Bedding (150mm granular bed and surround). Where depth of cover to top of sewer is less than 1.2m in highways and verges (or 900mm in non-vehicular access areas) then a reinforced concrete slab should be provided above the granular bedding and surround.
- Prior to the commencement of an site works the contractor is to check the location, invert levels, sizes and conditions of manholes, pipes, and any catches or watercourses in which it is intended to outfall. Any discrepancy is to be reported immediately to ID Civils Design.
- Prior to construction the actual position and depth of services likely to be affected by the work should be established by means of a hand dig in close liaison with the statutory service authorities. The contractor shall immediately inform ID Civils Design of any services exposed that may affect the design.
- The Local Authority and statutory service providers are to be notified prior to the commencement of work on site.
- Filled ground must be filled and consolidated under the supervision and satisfaction of Yorkshire Water before any sewer works are carried out.
- Yorkshire Water is not obliged to accept drain/land drainage runoff into the public sewer network or adoptable drainage system (directly or indirectly). An alternative method of disposal of the land drainage runoff will therefore be required and you will have to liaise with the Local Authority, Land Drainage Section with regard to the disposal of the filter drain/land drainage runoff.
- Manhole cover slabs must carry the BS1 Kitemark or will be rejected by the Yorkshire Water Inspector. Where the clear opening of the kitemarked product is different to that of the cover and frame, a load bearing slab should be fitted above the cover slab to bring the size down to 600mm x 600mm for the Yorkshire Water specified cover size. Please refer to Concrete Pipe Systems Association (CPSA) Technical Bulletin issued Autumn 2004 for kitemarked cover slab opening sizes.
- Substrate resistant cement (C20-DC2) and precast concrete products must be used unless a laboratory report is provided proving these precautions are not necessary.
- The minimum crushing strength for clay pipes should be as follows: 100mmØ - 40kN/m, 150mmØ - 40kN/m, 225mmØ - 45kN/m, 300mmØ - 72kN/m.
- The minimum crushing strength for concrete pipes should be (Class 120 to EN1916/BS5911-1:2002). Plastic pipes to conform to WIS 4-35-01 and BS EN 13476.
- Adoptable plastic sewer pipes to be BS1 Kitemarked (certified to WIS 4-35-01 and BS EN13476). Adoptable plastic sewer pipes to be laid in maximum 3.0m lengths unless there is a specific operational need for longer lengths; plastic channel sections in manholes are not acceptable and Yorkshire Water would prefer clayware channels in manholes. They have found that plastic channels are difficult to set in concrete because they float and a satisfactory finish cannot be achieved on the bedding.
- All new connections to adopted sewers to be covered by a Section 106 Agreement with Yorkshire Water. The application form to be completed by the Main Contractor and accompanied by the relevant fee.
- Prior to commencement, the Main Contractor is to provide Yorkshire Water with documentary evidence from the manufacturer that all plastic pipes used are suitable for the ground conditions.
- The chamber size of manholes with more than one connection in may need to be increased an increment to accommodate the connections and bands.
- Yorkshire Water policy is not to accept Type "C" brick manholes and 1050mmØ manhole rings. Instead it is preferred that you use a Type "B" manhole with 1200mmØ or 1500mmØ rings, with the opening sized over the channel width depending on depth of cover to pipe soffit is 1.0m - 1.5m.
- Where a B125 cover and frame has been approved, this must not be coated in plastic and must have lifting eyes suitably sized to accommodate standard lifting keys. Screw down covers are not acceptable.
- The clearance of the crossover points (min 300mm) between the surface water, foul sewers, rising main and other services should be given to provide sufficient clearance for 150mm granular bed and surround around both pipes.
- New connections to the public sewer should be connected soft to soft, unless stated otherwise.

CONSTRUCTION RISKS		
CONSTRUCTION RISKS	MAINTENANCE RISKS	DEMOLITION RISKS
Public gaining access to the site - risk of accidents, injury, death, ensure site fully fenced off and secured.		
Working close to existing services, both known and unknown - risk of injury or death, ensure all services located prior to commencement of works.		
Working with existing sewers and watercourses - risk of Lyme Disease and Wastewater		

In addition to the hazards/risks normally associated with this type of work detailed on this drawing take note of the above. ID Civils Design are only required to provide information about any significant risks associated with the design.

- Health and Safety/Access/CRN Regulations 2013**
- In line with the above regulations we are obliged to inform the Contractor of the abnormal risks that may be encountered in the construction of these works. As part of the design process all the relevant health & safety aspects are given full consideration and these are observed within the designs within this document. Although considerable efforts are made to eliminate risks, the very nature of the project gives rise to some hazards and risks.
- Significant risks that cannot be eliminated by design and could not be foreseen by a competent contractor are noted in the risk assessment below on the drawings.
- PRIVATE DRAINAGE NOTES**
- Manholes, sewers etc. and any other part of the works intended for adoption under a Section 104 Agreement or gullies etc. intended for adoption as Highway Drainage are to be constructed in accordance with the W.A. specification "Sewers for Adoption" (6th Edition) and to any requirements of the Adopting Authority and the Local Council.
 - Unadopted FW and SW drainage is to be constructed in accordance with the Building Regulations, BS, BS01 and relevant Agreement Certificates.
 - All private drainage to be 150mmØ unless indicated otherwise. All connections from private to adoptable manholes/sewers to be 150mmØ/min.
 - Private drainage with less than 0.9m of cover in drives and car parking areas to have minimum 150mm concrete bed and surround.
 - Private Drains are to be constructed using flexibly-jointed vitrified clay pipes to BS 65 "Super Strength" specification and BS EN 295 (e.g. Hepworth SuperSever or similar) or uPVC Building Drainage system pipe work to EN 1401-1, bedded and back filled in accordance with the manufacturers instructions and the specifications listed in Note 2.
 - Backfilling of drain trenches adjacent to dwellings or other structures to be in accordance with BS 8303-Fig.5.
 - Access fittings and inspection chambers less than 1m deep are to be clayware or pre-formed polypropylene as appropriate to the depth and number of connections. Chambers greater than 1.2m deep are to be pre-cast concrete construction with 150mm in-situ concrete surround, or polypropylene reduced access system. Inspection chamber sizes are to be in accordance with Table 6 of BS 6391.
 - Cover levels indicated on the drawing are nominal and may be adjusted to suit finished ground levels as necessary. Private inspection chamber covers should be Grade C in areas accessible to wheeled vehicles and Grade B elsewhere.
 - Rainwater down pipes to be connected direct to drain using an appropriate adaptor and removable section of down pipe to permit rodding access.
 - Where drains pass through foundations or other rigid structures, a lintel or sleeve is to be used and provision for flexibility is to be made with "rocker pipes".
 - The positions of SVPs, sub-stacks, W.C. outlets etc. and rainwater down pipes are to be accurately located from the house-type working drawings.
 - Gullies situated in areas accessible to wheeled vehicles are to be of suitable grating ref. INCC for a single private drive. For communal parking areas refer to the detail shown on ID Civils Design drawing number 4525-C03-01.
 - Drains within areas of "made ground" to be constructed by first making up the area to approx. finished level and then excavating through the fill material into undisturbed ground. The drain trench is then to be back filled to formation level using suitable granular fill material well-compacted in layers not exceeding 225mm.
 - Drains to be constructed under dwellings with suspended floor slabs should either be installed using a proprietary lagging system where "beam and pot" or similar construction is used, or should be cast into local slab thickening where reinforced concrete ground slabs are to be poured in-situ.
 - Finished ground levels have been prepared assuming that the level threshold to the building, is in accordance with part M of the building regulations, is at the front of the property unless otherwise stated.
 - For all details of fences/walls and enclosures refer to architect for details.
 - Channel drainage, labelled ACO should be a minimum of B125 in front of garages and C250 in other areas where vehicular traffic is present. All channels to have a preformed channel with falls to the drainage point where the grating itself is level. Gratings to be of similar approval.
 - All inspection chamber covers in private gardens to be square or rectangular as appropriate and inset where in paving and aligned with the paving material.
 - No tree or shrub planting within 0.5m of the shared surfaces.

MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT (m)	DEPTH TO SOFFIT (m)	PIPE SIZE (Ø)	MANHOLE RING SIZE (Ø)	MANHOLE TYPE	COVER CLASS
S1	171.380	169.500	1.880	1.980	300	1200	B	D400
S2	170.840	168.934	1.906	1.606	300	1500	B	D400
S3	170.540	168.634	1.906	1.606	300	1500	B	D400
S4	170.400	168.494	1.906	1.606	300	1500	B	D400
S5	174.000	172.250	1.750	1.525	225	1200	B	D400
S6	170.150	166.700	3.450	3.225	225	1200	A	D400
S7	170.640	166.495	4.145	3.945	300	1500	A	D400
S8	170.360	166.445	3.915	3.615	300	1200	A	D400
S9	170.100	166.342	3.758	3.458	300	1500	A	D400
S10	170.200	166.251	3.949	3.649	300	1500	A	D400
S11	169.600	166.168	3.432	3.132	300	1500	A	D400
S12	168.200	164.298	3.902	3.002	900/300	3600	Refer to ID-drg. 4733-C-D4-03	D400 Triple cover
S13	167.190	164.205	2.985	2.685	300	1200	B	D400
S14	166.800	164.138	2.662	2.362	300	1200	B	D400
T1	168.800	164.520	4.280	2.280				D400
T2	168.800	164.520	4.280	2.280				D400
T3	168.200	164.368	3.832	1.832				D400

Attenuation Tank
Refer to Bland and Swift Drawing 11905-01

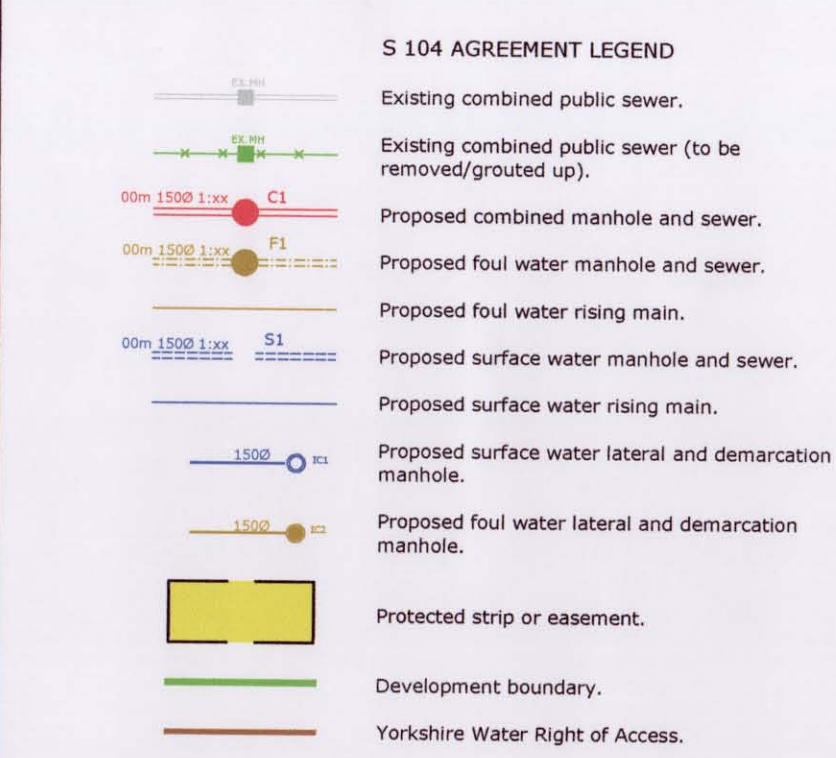
DEMARICATION CHAMBER REFERENCE	SYSTEM	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT (m)	TYPE/DIA.	LATERAL DIAMETER	COVER CLASS	COVER LENGTH (m)	OUTGOING PIPE GRADE/INVERT
IC1	SW	171.96	170.23	1.73	N.E.I.C.	1500	B125	6.8	1:10
IC2	SW	171.35	169.81	1.54	N.E.I.C.	1500	B125	2.3	1:10
IC3	SW	170.80	169.05	1.75	N.E.I.C.	1500	D400	3.0	1:10
IC4	SW	170.30	166.60	3.7	A	1500	D400	2.3	1:10
IC5	SW	170.34	166.842	3.498	A	1500	B125	3.5	1:10
IC6	SW	170.00	167.33	2.67	B	1500	B125	5.6	1:10
IC7	SW	171.55	168.37	3.18	A	1500	D400	11.7	1:10
IC8	SW	174.00	172.70	1.30	N.E.I.C.	1500	D400	11.7	1:10
IC9	SW	170.90	169.404	1.506	N.E.I.C.	1500	B125	7.6	1:10
IC10	SW	170.80	169.364	1.436	N.E.I.C.	1500	B125	5.8	1:10
IC11	FW	171.63	170.49	1.14	U.I.C.	1500	D400	4.3	1:10
IC12	FW	171.34	170.28	1.06	U.I.C.	1500	B125	3.5	1:10
IC13	FW	170.75	168.703	2.047	A	1500	B125	2.3	1:10
IC14	FW	170.60	167.41	3.19	A	1500	B125	2.3	1:10
IC15	FW	170.10	168.153	1.947	N.E.I.C.	1500	B125	2.7	1:10
IC16	FW	171.25	169.98	1.27	N.E.I.C.	1500	B125	5.5	1:10
IC17	FW	170.50	168.179	2.321	B	1500	B125	5.4	1:10
IC18	FW	170.80	167.808	2.992	B	1500	B125	4.4	1:10
IC19	FW	170.85	167.932	2.918	B	1500	D400	7.4	1:10

N.E.I.C. = WATER DEMARICATION LATERAL INSPECTION CHAMBER (up to 1200mm deep).
U.I.C. = WASTEWATER NON ENTRY INSPECTION CHAMBER (up to 2000mm deep).

MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT (m)	DEPTH TO SOFFIT (m)	PIPE SIZE	MANHOLE RING SIZE	MANHOLE TYPE	COVER CLASS
F1	170.88	169.43	1.45	1.30	1500	15000	B/E	D400
F2	170.42	168.046	2.374	2.224	1500	12000	B	D400
F3	170.12	167.883	2.237	2.087	1500	12000	B	D400
F4	170.30	167.539	2.861	2.511	1500	12000	B	D400
F5	170.58	167.368	3.212	3.062	1500	12000	A	D400
F6	171.40	170.00	1.40	1.25	1500	15000	B/E	D400
F7	170.87	168.123	2.747	2.597	1500	12000	B	D400
F8	170.68	167.192	3.488	3.338	1500	12000	A	D400
F9	168.40	166.985	1.415	1.265	1500	12000	B	D400
F10	167.15	165.60	1.55	1.40	1500	15000	B/E	D400
F11	166.35	164.90	1.45	1.30	1500	15000	B/E	D400

MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT (m)	DEPTH TO SOFFIT (m)	PIPE SIZE	MANHOLE RING SIZE	MANHOLE TYPE	COVER CLASS
C1	165.90	164.197	1.703	1.553	1500	12000	B	D400
C2	165.60	163.654	1.946	1.646	3000	12000	B	D400
		163.579	2.012	1.646	3750	12000	B	D400

MANHOLE REFERENCE	COVER LEVEL	INVERT LEVEL	DEPTH TO INVERT (m)	DEPTH TO SOFFIT (m)	PIPE SIZE	MANHOLE RING SIZE	MANHOLE TYPE	COVER CLASS
H1	168.800	166.900	1.900	1.675	2250	12000	B	D400



C	Updated following YW comments	CR	05.12.18
B	Updated following YW comments	CR	22.10.18
A	S9 cover level corrected	AH	11.06.18
Rev	Description	By	Date

Rouse Homes

Project Title:

Birkenshaw

Drawing Title:

Section 104 Agreement

Scale: 1:500 @ A1 Date: May 2018

Drawing No	Revision	Status
4733-C-D6-01	C	Approval

i Geo Structures Civils

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