

FOUL DRAINAGE MANHOLE SCHEDULE

REFERENCE	Cover Level (m)	Invert Level (m)	Depth to Soffit (m)	Size (mm)	Type	Cover Grade
FA	6.50	TBA	TBA	TBA	TBA	D400
F1	6.75	6.00	0.650	450 diameter	3	B125
F2	6.85	5.75/5.70	1.00	450 diameter	3	B125
F3	6.90	5.48	1.27	450 diameter	3	B125
F4	6.30	5.43	0.72	450 diameter	3	B125
F5	6.65	5.275	1.225	450 diameter	3	B125
F6	6.65	5.65	0.90	450 diameter	3	B125
F7	6.65	5.90	0.500	450 diameter	3	B125
F8	6.55	5.00	1.40	450 diameter	3	D400
F9	6.85	6.10	0.65	450 diameter	3	B125
F10	6.80	5.905.85	0.80	450 diameter	3	B125
F11	6.80	5.65	1.00	450 diameter	3	B125
F12	6.75	5.45	0.700	450 diameter	3	B125
F13	6.60	5.60	0.90	450 diameter	3	B125
F14	6.45	5.30	1.05	450 diameter	3	B125
F15	6.35	4.76	1.49	450 diameter	3	B125
F16	6.20	4.704.65	1.40	450 diameter	3	D400
F17	6.60	4.404.35	2.10	450 diameter	3	D400
F18	6.50	5.825	0.575	450 diameter	3	B125
F19	6.55	5.40	1.05	450 diameter	3	B125
F20	6.60	5.50	1.00	450 diameter	3	B125
F21	6.815	6.215	0.50	450 diameter	3	B125
F22	6.85	4.055.50	2.65	450 diameter	3	D400
F23	6.70	5.00	1.55	450 diameter	3	B125
F24	6.60	5.25	1.30	450 diameter	3	B125
F25	6.60	5.35	1.10	450 diameter	3	B125
F26	6.55	5.555.50	0.85	450 diameter	3	B125
F27	6.45	5.65	0.70	450 diameter	3	B125
F28	6.30	5.813	0.39	450 diameter	3	B125
F29	6.85	5.905.85	0.850	450 diameter	3	B125
F30	6.85	6.20	0.550	450 diameter	3	B125
F31	6.50	4.91	1.44	450 diameter	3	D400
F32	6.50	4.85	1.50	450 diameter	3	D400
F33	6.50	4.82	1.73	450 diameter	3	D400
F34	6.80	5.65	0.85	450 diameter	3	B125
F35	6.60	5.80	0.70	450 diameter	3	B125
F36	6.70	6.00	0.60	450 diameter	3	B125
F37	6.75	3.975/6.65	2.025	450 diameter	3	D400
F38	6.85	5.75	1.00	450 diameter	3	B125
F39	6.75	6.00	0.65	450 diameter	3	B125
F40	6.85	6.25	0.50	450 diameter	3	B125
F11	6.65	6.05	0.500	250 diameter	4	B125
F12	6.65	6.05	0.500	250 diameter	4	B125
F13	6.65	6.05	0.500	250 diameter	4	B125
F21	6.80	6.20	0.450	250 diameter	4	B125
F22	6.80	6.20	0.500	250 diameter	4	B125
F23	6.80	6.20	0.500	250 diameter	4	B125
F24	6.80	6.20	0.500	250 diameter	4	B125
F25	6.85	6.25	0.500	250 diameter	4	B125
F26	6.85	6.25	0.500	250 diameter	4	B125
F41	6.90	6.30	0.500	250 diameter	4	B125
F42	6.65	6.05	0.500	250 diameter	4	B125
F43	6.65	6.05	0.500	250 diameter	4	B125
F51	6.65	6.05	0.500	250 diameter	4	B125
F52	6.65	6.05	0.500	250 diameter	4	B125
F61	6.65	6.05	0.500	250 diameter	4	B125
F62	6.65	6.05	0.500	250 diameter	4	B125
F71	6.65	6.05	0.500	250 diameter	4	B125
F72	6.65	6.05	0.500	250 diameter	4	B125
F91	NOT USED					
F92	6.70	6.10	0.500	250 diameter	4	B125
F93	6.80	6.20	0.500	250 diameter	4	B125
F94	6.75	6.15	0.500	250 diameter	4	B125
F101	6.80	6.20	0.500	250 diameter	4	B125
F102	6.85	6.25	0.500	250 diameter	4	B125
F111	6.70	6.10	0.500	250 diameter	4	B125
F131	6.45	5.85	0.500	250 diameter	4	B125
F132	6.45	5.85	0.500	250 diameter	4	B125
F133	6.45	5.85	0.500	250 diameter	4	B125
F134	6.30	5.75	0.500	250 diameter	4	B125
F141	6.30	5.70	0.500	250 diameter	4	**B125**
F142	6.30	5.70	**0.600**	**250 diameter**	**4**	**B125**
F143	6.25	5.65	0.550	**250 diameter**	**4**	**B125**
F144	6.25	5.65	**0.500**	250 diameter	4	**B125**
F161	6.425	5.825	0.500	250 diameter	4	**B125**
F162	6.425	5.825	0.500	**250 diameter**	**4**	**B125**
F163	6.425	5.825	0.500	**250 diameter**	**4**	**B125**
F191	6.60	6.00	0.500	250 diameter	4	**B125**
F192	6.60	6.00	0.500	250 diameter	4	**B125**
F193	6.60	6.00	**0.500**	250 diameter	4	**B125**
F211	6.815	6.125	0.500	250 diameter	4	**B125**
F231	6.70	6.10	0.500	250 diameter	4	**B125**
F232	6.70	6.10	**0.600**	**250 diameter**	**4**	**B125**
F233	6.70	6.10	0.500	**250 diameter**	**4**	**B125**
F234	6.70	6.10	**0.500**	250 diameter	4	**B125**
F251	6.55	5.95	0.500	250 diameter	4	**B125**
F252	6.55	5.95	0.500	**250 diameter**	**4**	**B125**
F261	6.55	5.95	0.500	250 diameter	4	**B125**
F281	6.85	6.25	0.500	**250 diameter**	**4**	**B125**
F282	6.85	6.25	**0.500**	250 diameter	4	**B125**
F283	6.85	6.25	0.500	250 diameter	4	**B125**
F284	6.85	6.25	0.500	**250 diameter**	**4**	**B125**
F285	6.85	6.25	0.500	250 diameter	4	**B125**
F286	6.85	6.25	0.500	250 diameter	4	B125
F301	6.85	6.25	0.500	250 diameter	4	B125
F341	6.60	6.00	0.500	250 diameter	4	B125
F342	6.70	6.10	0.500	250 diameter	4	B125
F343	6.70	6.10	0.500	**250 diameter**	**4**	**B125**
F344	6.60	5.95	0.550	250 diameter	4	B125
F345	6.70	6.05	0.550	250 diameter	4	B125
F346	6.85	6.10	0.650	250 diameter	4	B125
F347	6.85	6.10	0.650	250 diameter	4	B125
F348	6.85	6.10	0.650	250 diameter	4	B125
F351	6.60	6.00	0.500	250 diameter	4	B125
F352	6.60	5.95	0.550	250 diameter	4	B125
F353	6.75	6.00	0.650	250 diameter	4	B125
F354	6.75	6.00	0.650	250 diameter	4	B125
F361	6.85	6.25	0.500	250 diameter	4	B125
F362	6.80	6.20	0.500	250 diameter	4	B125
F391	6.80	6.20	0.500	250 diameter	4	B125
F392	6.80	6.20	0.500	250 diameter	4	B125
F393	6.85	6.25	0.500	250 diameter	4	B125
F394	6.85	6.25	0.500	250 diameter	4	B125

SURFACE WATER DRAINAGE MANHOLE SCHEDULE

REFERENCE	Cover Level (m)	Invert Level (m)	Depth to Soffit (m)	Size (mm)	Type	Cover Grade
ExSA	7.75	6.575	1.025	Existing Manhole		
S1	6.20	5.618/5.543	0.432	900x675	D	D400
S2	6.62	5.411/5.336	1.059	1240x675	C	D400
S3	6.78	5.050	1.505	1200 diameter	2	D400
S4	6.80	4.924	1.601	1050 diameter	6	D400
S5	6.75	5.894	0.841	900x675	D	D400
S6	6.70	5.494	0.881	900x675	D	D400
S7	6.57	5.405	0.941	900x675	D	D400
S8	6.50	5.336	0.939	900x675	D	D400
S9	6.45	5.290	0.935	900x675	D	D400
S10	6.45	5.260	0.965	900x675	D	D400
S11	6.71	4.970	1.515	1200 diameter	2	D400
S12	6.80	4.925	1.650	1050 diameter	6	D400
S13	6.665	6.100	0.415	900x675 with 450mm sump	D	D400
S11	6.25	5.585	0.515	450 diameter	3	B125
S12	6.30	5.745	0.405	450 diameter	3	B125
S13	6.45	5.858	0.442	450 diameter	3	B125
S14	6.50	5.945/5.995	0.405	450 diameter	3	B125
S15	6.55	5.845	0.755	450 diameter	3	B125
S21	6.60	5.60	0.90	450 diameter	3	B125
S22	6.60	5.68	0.82	450 diameter	3	B125
S23	6.425	5.80	0.525	450 diameter	3	B125
S24	6.65	5.74	0.81	450 diameter	3	B125
S25	6.60	5.80	0.70	450 diameter	3	B125
S26	6.60	5.90	0.80	450 diameter	3	B125
S27	6.70	5.365/5.44	1.11	600 diameter	3	B125
S28	6.60	5.54	0.91	450 diameter	3	B125
S29	6.60	5.627/5.577	0.873	450 diameter	3	B125
S210	6.65	5.90	0.65	450 diameter	3	B125
S41	6.65	5.70	1.05	450 diameter	3	B125
S42	6.65	5.87	0.88	450 diameter	3	B125
S43	NOT USED					
S44	6.85	6.00	0.75	450 diameter	3	B125
S45	6.85	6.10	0.65	450 diameter	3	B125
S61	6.75	5.90	0.70	450 diameter	3	B125
S62	6.70	6.20	0.40	450 diameter	3	B125
S63	6.75	5.96	0.69	450 diameter	3	B125
S64	6.80	6.08	0.62	450 diameter	3	B125
S65	6.80	6.20	0.50	450 diameter	3	B125
S101	6.60	5.60	0.90	450 diameter	3	B125
S102	6.60	5.80	0.70	450 diameter	3	B125
S103	6.60	6.10	0.40	450 diameter	3	B125
S111	6.80	5.60	1.10	450 diameter	3	B125
S112	6.80	5.90	0.80	450 diameter	3	B125
ST1	6.65	6.10	0.45	450 diameter	5	B125
ST2	6.65	6.10	0.45	450 diameter	5	B125
ST3	6.80	6.25	0.45	450 diameter	5	B125
ST4	6.80	6.25	0.45	450 diameter	5	B125
ST5	6.85	6.28	0.47	450 diameter	5	B125
ST6	6.90	6.25	0.55	450 diameter	5	B125
ST7	6.65	6.08	0.47	450 diameter	5	B125
ST8	6.65	6.09	0.46	450 diameter	5	B125
ST9	6.65	6.08	0.47	450 diameter	5	B125
ST10	6.65	6.10	0.45	450 diameter	5	B125
ST11	6.65	6.10	0.45	450 diameter	5	B125
ST12	6.90	6.00	0.80	450 diameter	5	B125
ST13	6.85	5.50	1.25	450 diameter	5	B125
H1	6.30	4.60			Headwall	
H3	6.30	4.60			Headwall	
H4	6.47	5.22			Headwall	

DITCH CONNECTING PIPE MANHOLE SCHEDULE

REFERENCE	Cover Level (m)	Invert Level (m)	Depth to Soffit (m)	Size (mm)	Type	Cover Grade
D1	6.00	4.94	0.91	675x675		GA450
D2	6.10	4.912	0.738	900x675	D	D400
D3	6.65	4.765	1.435	900x675	D	D400
D4	6.73	4.653	1.627	900x675	D	D400
D5	6.65	4.854	1.756	900x675	D	D400
D6	6.30	4.525	1.325	900x675	D	D400
H2	6.30	4.52			Headwall	

DOMESTIC SOAKAWAY DETAILS-Trench Soakaways (Based on In-situ tests)

Soakaway Ref	Area Draining m² (Inc 10% UC)	Width m	Length m	Ground level	Invert level incoming pipe	Soakaway base Invert	Infiltration Zone
Sc1	85	1.40	14.50	6.70	6.05	5.750	1
Sc2	93	1.40	14.50	6.70	6.05	5.750	1
Sc3	60	1.0	13.0	6.70	6.20	5.80	2
Sc4	60	1.0	13.0	6.70	6.20	5.80	2
Sc5	98	1.40	14.20	6.80	6.20	5.80	2
Sc6	103	1.40	12.0	6.80	6.20	5.70	3
Sc7	92	1.40	12.0	6.70	6.04	5.60	3
Sc8	61	1.40	12.0	6.70	6.04	5.60	3
Sc9	98	1.40	14.0	6.80	6.03	5.65	3
Sc10	57	1.50	8.0	6.50	6.05	5.60	3
Sc11	57	1.50	8.0	6.50	6.05	5.60	3

Infiltration Rates

Infiltration Zone	Soakage Rate (m/s)	Soakage Rate (m/hr)
1	1.01E-04	0.427234
2	2.50E-04	0.899618
3	3.76T-E-04	0.013561

Infiltration rates have been confirmed by in-situ tests.

Notes:

1.All levels are to local Datum.
2.All Highway work's on or adjacent to existing public highway shall be executed in accordance with the Traffic Safety Code for Roadwork's and Chapter 8 of the Traffic Signs Manual.
3.At the commencement of works on site the contractor is to carry out trial pits and liaise with Utility Companies in order to establish the exact position of all existing statutory utility plant in the vicinity of works and take adequate precautions or their protection.
4.The Contractor is to comply fully with the CDM Regulations in the course of constructing the works.
5.Highways in the vicinity of the works must be kept free from mud, debris and dust falling from vehicles or the wheels of vehicles connected with the works.
6.All drain and sewer pipes to be laid soffit to soffit, unless shown otherwise.
7.Minimum gradient for 100Ø SW is 1:100 and 150Ø FW is 1:60 with one WC connected otherwise 1:40. Bedding for domestic drainage Class B. All pipe runs near buildings to comply with the Building Regulations 2010 Part H1.
8.Position of soil pipes, standing wastes, wc outlets etc. are shown on the Architect's working drawings. Rainwater downpipe positions are to be checked against Architects details to ensure compatibility. Rainwater downpipes to have nodding access facilities where surface water drainage passes under buildings.
9.All concrete and concrete products to be in accordance with BRE 363 for sulphates.
10.All slab levels shown are for guidance only and may need to be adjusted on site, subject to approval by the engineer.
11.Do not scale from this drawing, work only from stated dimensions or setting out details.
12.Refer to tables for manhole schedules
13. Where paths falls towards the front door use suitable linear/slot drainage system connected to surface water system as per architects details.
14. All plots to have gardens sloping away from properties otherwise interceptor drains to be installed.
15. Surface water drainage connected to catchl manhole prior to discharge to soakaway
16. Soakaways to be minimum 5.0m from dwelling foundations and 2.0m from boundary wall foundations. Boundary walls within 2.0m of soakaways to have reinforced foundations. Prior to construction of soakaways trial holes to be dug to the Invert of base to establish ground water level.
17. This drawing is to be read in conjunction with all relevant engineering drawings issued by Escher Silverman and Crayfern Homes for this site only.

LEGEND:

Foul Water Drainage Legend:

- Existing foul water sewer (sited in Bilsham Road)
- Domestic foul water sewer and manholes
- Foul sewer rising main
- Foul water pumping station (not adopted)
- F1 — Type 2 - 1200mm Ø
- F4 — Type 3 - 450mm or 600mm Ø
- F4 — Type 4 Shallow PPIC inspection chamber - 250mm Ø, Invert 750mm lower than FFL unless noted otherwise

Surface Water Drainage Legend:

- S13 — Type 2 - 1200mm Ø
- S1 — Type 6 - 1050mm Ø silt trap manhole
- Type C 1240 x 675 (see schedule)
- D5 — Type D 900 x 675 (see schedule)
- Domestic surface water drain with nodding eye.
- S1 — TYPE 3 - 450mm
- ST3 — Type 5 - 450mm Silt Trap
- Unadopted highway gully
- Unadopted highway gully
- Aco drainage channel (installed at all garage entrances)
- Bs1 — Domestic trench soakaways. Sizing determined by in-situ infiltration testing. Soakaways designed in accordance with Environment Agency criteria for 1 in 100years storm return +40% climate change and sited a minimum of 5.0m from new dwellings.
- Existing drainage ditch replaced with 'Aquacell' Prime infiltration/swale system adjacent to Cinders Lane. Inspection access points at 25 metre intervals. 150 mm dia overflow at high level as indicated.
- 'Aquacell' Core attenuation tank with air valve
- H1 — Headwall discharge to ditch

Surfacing Legend:

- Block paved domestic drive
- Permeable block paved domestic drive Depth of sub base - 225mm
- Permeable block paved shared drive Depth of sub base - 320mm
- Permeable block paved access entrance Depth of sub base - 385mm
- Reinforced grass parking construction
- Flexible construction footpath/bridleway

E	11.11.19	S13 & H4 added, bitdiway amended to flexible construction	KN
		minor domestic drainage adjustments	
D	23.10.19	Amendements to drainage, Plots 25/26 adjusted	KN
C	13.08.19	Aquacell overflows added as requested by ADC drainage engineer	KN
B	29.07.19	Issued for Tender	KN
A	27.06.19	First Issue	KN
Rev.	Date	Details	Initials

FOR TENDER

Project: CINDERS NURSERY YAPTON

Client: Crayfern HOMES

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Drawing Title: Engineering Details
Drawing Layout

Drawn	Checked	Scales	Paper Size	Date
KN		1:250	A0	12.18
Job No.		Drawing No.		Revision
KNC1826		502-01		E

SAFETY, HEALTH & ENVIRONMENTAL INFORMATION CDM Regulations 2015

In addition to the hazards/risks normally associated with the type of work detailed on this drawing note should be made of the following:

- Working in vicinity of live highway
- Services to be located prior to any excavation work being undertaken
- Deep excavations
- Working on live foul sewers

It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement. Contractor is not relieved of any of his obligations under all applicable health and safety regulations.

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