

General Notes

- DO NOT SCALE.
- This drawing is to be read in conjunction with all other relevant drawings and details.
- Should there be any conflict between the details indicated on this drawing and those on other drawings the Engineer should be informed PRIOR to construction on site.
- Until technical approval has been obtained from the relevant Authority, it should be understood that all drawings issued are Preliminary and NOT for construction. Should the Contractor commence site work prior to such approval being given it is entirely at their own risk.
- Sketch proposals are for illustrative purposes only and as such are subject to detailed site investigation including ground conditions / contaminants, drainage, design and planning / density negotiations.
- All dimensions are in millimetres unless otherwise stated.
- The Farrow Walsh Consulting Designers Risk Assessments for this project must be reviewed PRIOR to the commencement of any works on site.

NOTES

- This drawing to be read in conjunction with all other relevant Engineers and Architect's details.
- All work is to be carried out in accordance with the current British Standards, codes of practice, building regulations and with Sewers for Adoption 6th Edition guidance.
- The exact position, level, size and use of existing sewers to be confirmed on site. Any discrepancies to be reported to the engineer prior to commencement of works.
- All uncovered and shallow pipework to be protected against construction traffic as part of the contractors temporary works requirements.
- Cover levels shown are approximate only, subject to the Architect's external works and landscaping scheme.
- All connections to road gullies and channels shall be 150mm nominal bore pipework. Connections to RVPs to be 100mm nominal bore pipework subject to confirmation of RWP sizes and/or design flow. No pipe work to be downsized in the direction of flow.
- Connections to foul terminal fittings to be 100mm nominal bore pipework subject to confirmation of above ground pipe diameters and/or design flow. No pipe work to be downsized in the direction of flow.
- All pipework to be Vitrified Clay unless otherwise noted.
- All pipes connecting to adopted manholes up to and including 300mm dia. to be Vitrified Clay.
- All pipes connecting to adopted manholes greater than 300mm dia. to be Concrete.
- All pipework entering and exiting manholes to be connected with pipe soffits level.
- Pre-formed channels to be used at all manholes.
- High strength concrete benching to be steel trowelled to a dense smooth face neatly shaped and finished to all branch connections and laid in accordance with the specification.
- Pipe bends to be provided to suit direction of flow.
- All manhole covers and frames to be ductile iron heavy duty Grade D400 double triangular to BS EN 124 unless otherwise noted. Covers to be labelled 'FW' and 'SW' as appropriate.
- Gully tops and manhole covers to be provided in accordance with BS EN 124.
- All new drainage to be constructed adjacent new and proposed tree planting to be protected against root activity using 'rootcontrol' root barrier material by green-tech. All in accordance with the manufacturer's recommendations.
- First flexible joint in pipes adjacent to a manhole shall be 600mm max. From inside face of manhole, connecting to rocker pipe. For pipe diameters 150mm - 450mm the rocker pipe length shall be 500mm - 750mm and for pipe diameters 451mm - 675mm the rocker pipe length shall be 750mm - 1000mm.
- Manholes with outgoing pipes greater than 600mm dia. Shall be fitted with guard bars, safety chains or other approved safety devices.
- All soft spots encountered in the trench formation to be removed and replaced with graded granular material unless instructed otherwise.
- Where the formation of a pipe trench is above original ground level, levels are to be made up with compacted DTP Type 2 material or better.
- All private drives which fall towards a public highway and exceed two parking bays in area are to be provided with a suitable gully or drainage channel to prevent water discharging onto the highway.
- All buried concrete must cater for Class 2 sulphates conditions in accordance with table 1 of BRE digest 363.
- Concrete protection shall be provided to all pipes with less than 300mm cover in pedestrian areas, to all pipes with less than 600mm cover in private driveways not used by commercial vehicles, and to all pipes with less than 1200mm cover in roads or private driveways used by commercial vehicles. Where concrete surround is specified flexibility of joints is to be maintained by using compressible bitumen impregnated fibreboard at each point.
- The design of any temporary works required shall be the responsibility of the contractor.
- All work is to be to the satisfaction of the engineer and Anglian Water.
- The contractor is responsible for and must take all necessary precautions to ensure the stability of the works at all times during construction.
- All workmanship and materials are to be to current British standards.
- All services are to be located and protected as necessary by the contractor prior to the commencement of the works.

T3	F11-F12 length updated as requested by AW 20.01.2020 and schedules updated to reflect upsized chambers.	BM	OP	JD	20.02.20
T2	F11-F12 updated to reflect relocation of manholes & schedules updated to include removal of sumps from all manholes as per requests from AW and LCC 13.01.2020 .	BM	OP	JD	20.01.20
T1	Issued for Tender.	BM	OP	JD	20.12.19
Rev	Description of updates	Drawn	Checked	App'd	Date
Revision Schedule					

62 Highcross Street, Leicester LE1 4NN
321 Bradford Street, Birmingham B5 6ET
0330 100 0363
www.farrowwalsh.com

TENDER

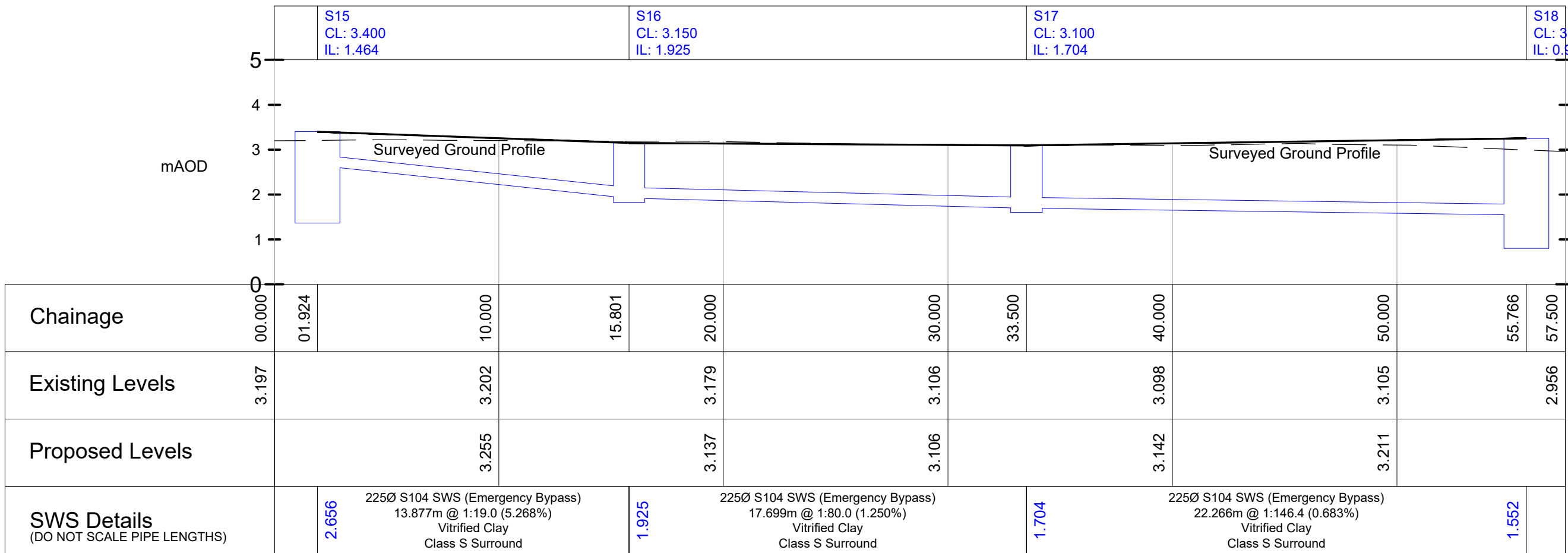
Client:
GEDA Construction Ltd.

Project:
Spalding Road,
Pinchbeck

Title:
Long Sections
Sheet 3 of 3

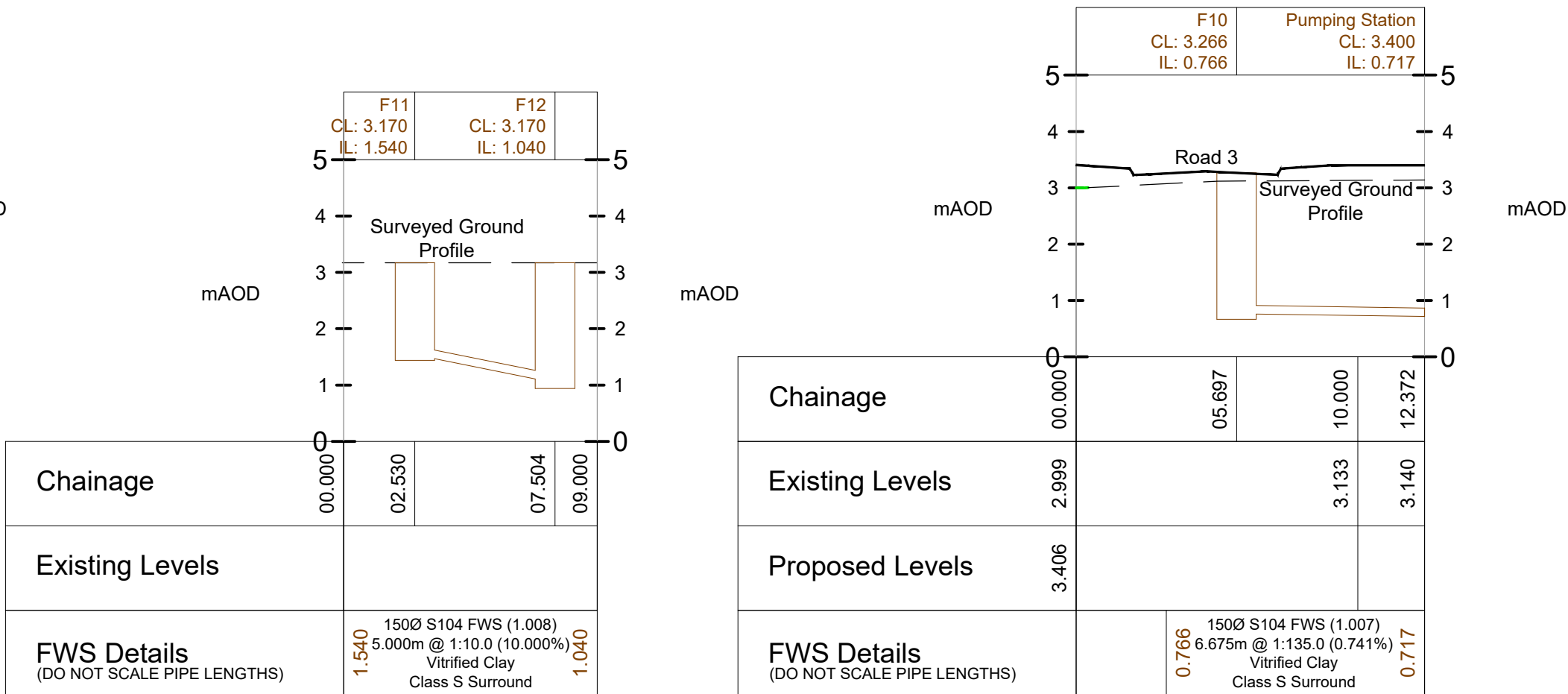
Drawn: BM	Checked: OP	Approved: JD	Date: Dec 2019	Scale: As Shown @ A1
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Drawing No. FW1664-D-412-03	Revision: T3
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S15 - S18 Alignment

Horiz. 1:200, Vert. 1:100



F11 - F12 Alignment

Horiz. 1:200, Vert. 1:100

F10 - Pumping Station Alignment

Horiz. 1:200, Vert. 1:100

Section 104 Adoptable Storm Water Manhole Schedule										
MH Ref.	Cover Level	Invert Level	Pipe Dia. (mm)	Depth to Soffit (m)	MH Type	MH Size (mm)	Frame	Cover	Easting (m)	Northing (m)
S1	3.200	2.091	300	0.809	D	1575x1125mm	600x600x150mm	D400	524676.162	324394.538
S2	3.662	2.028	300	1.333	E	Ø1200	600x600x150mm	D400	524684.378	324407.044
S3	3.589	1.920	300	1.369	E	Ø1200	600x600x150mm	D400	524699.610	324428.206
S4	3.458	1.874	300	1.284	E	Ø1200	600x600x150mm	D400	524709.909	324431.960
S5	3.311	1.999	300	1.012	E(S)	Ø1500	600x600x150mm	D400	524739.917	324385.446
S6	3.199	1.711	375	1.113	E	Ø1200	600x600x150mm	D400	524730.702	324435.767
S7	3.408	1.573	375	1.460	E	Ø1200	600x600x150mm	D400	524771.309	324443.204
S8	3.362	1.540	375	1.447	E(S)	Ø1500	600x600x150mm	D400	524781.146	324445.005
S10	3.568	1.859	300	1.408	E	Ø1200	600x600x150mm	D400	524817.456	324411.591
S12	3.487	1.760	300	1.427	E(S)	Ø1500	600x600x150mm	D400	524793.943	324407.285
S14	3.369	1.521	375	1.473	E(S)	Ø1500	600x600x150mm	D400	524786.845	324446.049
S15	3.400	1.464	375	1.561	B	Ø1800	600x600x150mm	D400	524803.486	324449.096
S16	3.150	1.925	225	1.000	E	Ø1200	600x600x150mm	D400	524816.284	324443.730
S17	3.100	1.704	225	1.171	E	Ø1200	600x600x150mm	D400	524833.446	324448.059
S18*	3.250	0.902	225	1.623	Flow Control	Ø1800	600x600x150mm	D400	524832.094	324470.284
* Denotes Hydro-Brake Flow Control Chamber with 500mm sump, IL shown INCLUDES sump.										

Section 104 Adoptable Storm Water Pipe Schedule									
Pipe Ref.	Upstream IL	Downstream IL	Diameter (mm)	Distance (m)	Fall (m)	Pipe Gradient 1:X	Pipe Gradient %	Pipe Material	Pipe Bedding
S1 - S2	2.091	2.028	300	14.964	0.062	1:240.0	0.417%	Vitrified Clay	Class S
S2 - S3	2.028	1.920	300	26.074	0.109	1:240.0	0.417%	Vitrified Clay	Class S
S3 - S4	1.920	1.874	300	10.962	0.046	1:240.0	0.417%	Vitrified Clay	Class S
S4 - S6	1.874	1.786	300	21.139	0.088	1:240.0	0.417%	Vitrified Clay	Class S
S5 - S6	1.999	1.786	300	51.158	0.213	1:240.0	0.417%	Vitrified Clay	Class S
S6 - S7	1.711	1.573	375	41.282	0.138	1:300.0	0.333%	Concrete	Class S
S7 - S8	1.573	1.540	375	10.000	0.033	1:300.0	0.333%	Concrete	Class S
S8 - S14	1.540	1.521	375	5.794	0.019	1:300.0	0.333%	Concrete	Class S
S10 - S12	1.859	1.760	300	23.904	0.100	1:240.0	0.417%	Vitrified Clay	Class S
S12 - S14	1.760	1.596	300	39.408	0.164	1:240.0	0.417%	Vitrified Clay	Class S
S14 - S15	1.521	1.464	375	16.919	0.056	1:300.0	0.333%	Concrete	Class S
S15 - S16	2.656	1.925	225	13.877	0.731	1:19.0	5.268%	Vitrified Clay	Class S
S16 - S17	1.925	1.704	225	17.699	0.221	1:80.0	1.250%	Vitrified Clay	Class S
S17 - S18	1.704	1.552	225	22.266	0.152	1:146.4	0.683%	Vitrified Clay	Class S
S15 - HW1	1.464	1.427	375	12.025	0.037	1:325.0	0.308%	Concrete	Class S
HW2 - S18	1.427	1.402	375	8.269	0.025	1:325.0	0.308%	Concrete	Class S
S18 - HW3	1.402	1.317	225	14.400	0.085	1:170.0	0.588%	Vitrified Clay	Class S

Section 38 Adoptable Storm Water Manhole Schedule										
MH Ref.	Cover Level	Invert Level	Pipe Dia. (mm)	Depth to Soffit (m)	MH Type	MH Size (mm)	Frame	Cover	Eastings (m)	Northing (m)
S9	3.407	2.008	225	1.783	B	Ø1500	600x600x150mm	D400	524829.710	324413.835
S11	3.357	1.932	225	1.200	E(S)	Ø1500	600x600x150mm	D400	524796.292	324394.461
S13	3.253	1.828	225	1.200	E(S)	Ø1500	600x600x150mm	D400	524785.278	324454.624

Section 38 Adoptable Storm Water Pipe Schedule									
Pipe Ref.	Upstream IL	Downstream IL	Diameter (mm)	Distance (m)	Fall (m)	Pipe Gradient 1:X	Pipe Gradient %	Pipe Material	Pipe Bedding
S9 - S10	2.008	1.934	225	12.457	0.073	1:170.0	0.588%	Vitrified Clay	Class S
S11 - S12	1.932	1.835	225	13.037	0.097	1:134.1	0.746%	Vitrified Clay	Class S
S13 - S14	1.828	1.671	225	8.717	0.157	1:55.4	1.806%	Vitrified Clay	Class S

Section 104 Adoptable Foul Water Manhole Schedule										
MH Ref.	Cover Level	Invert Level	Pipe Dia. (mm)	Depth to Soffit (m)	MH Type	MH Size (mm)	Frame	Cover	Easting (m)	Northing (m)
F1	3.167	1.817	150	1.200	E	Ø1200	600x600x150mm	D400	524677.825	324392.513
F2	3.611	1.521	150	1.940	B	Ø1200	600x600x150mm	D400	524700.195	324425.673
F3	3.529	1.478	150	1.901	B	Ø1200	600x600x150mm	D400	524705.267	324428.490
F4	3.343	1.371	150	1.822	B	Ø1200	600x600x150mm	D400	524719.432	324431.084
F5	3.231	1.142	150	1.939	B	Ø1500	600x600x150mm	D400	524749.846	324436.654
F6	3.409	0.971	150	2.289	B	Ø1200	600x600x150mm	D400	524772.617	324440.824
F7	3.462	1.562	150	1.750	B	Ø1200	600x600x150mm	D400	524796.606	324404.975
F8	3.606	1.435	150	2.021	B	Ø1500	600x600x150mm	D400	524793.507	324421.894
F9	3.406	0.844	150	2.412	B	Ø1200	600x600x150mm	D400	524789.475	324443.911
F10	3.266	0.766	150	2.350	B	Ø1200	600x600x150mm	D400	524787.593	324454.191
F11	3.170	1.540	150	1.480	E	Ø1200	600x600x150mm	D400	524854.241	324478.423
F12	3.170	1.040 (TBC)	150	1.980	B	Ø1200	600x600x150mm	D400	524856.397	324482.935

Section 104 Adoptable Foul Water Pipe Schedule									
Pipe Ref.	Upstream IL	Downstream IL	Diameter (mm)	Distance (m)	Fall (m)	Pipe Gradient 1:X	Pipe Gradient %	Pipe Material	Pipe Bedding
F1 - F2	1.817	1.521	150	40.000	0.296	1:135.0	0.741%	Vitrified Clay	Class S
F2 - F3	1.521	1.478	150	5.803	0.043	1:135.0	0.741%	Vitrified Clay	Class S
F3 - F4	1.478	1.371	150	14.400	0.107	1:135.0	0.741%	Vitrified Clay	Class S
F4 - F5	1.371	1.142	150	30.920	0.229	1:135.0	0.741%	Vitrified Clay	Class S
F5 - F6	1.142	0.971	150	23.150	0.171	1:135.0	0.741%	Vitrified Clay	Class S
F6 - F9	0.971	0.844	150	17.139	0.127	1:135.0	0.741%	Vitrified Clay	Class S
F7 - F8	1.562	1.435	150	17.200	0.127	1:135.0	0.741%	Vitrified Clay	Class S
F8 - F9	1.435	0.844	150	22.383	0.591	1:37.9	2.640%	Vitrified Clay	Class S
F9 - F10	0.844	0.766	150	10.451	0.077	1:135.0	0.741%	Vitrified Clay	Class S
F10 - Pumping Station	0.766	0.717	150	6.675	0.049	1:135.0	0.741%	Vitrified Clay	Class S
F11 - F12	1.540	1.040 (TBC)	150	5.000	0.500	1:10.0	10.000%	Vitrified Clay	Class S

Note: All pipe lengths, slopes and gradient percentages are based on centre of chamber to centre of chamber. Drainage contractor is responsible to check this information for construction purposes prior to any works

Invert level to be confirmed by Contractor prior to commencements of works

All connections to the adoptable sewers will be made at soffit to soffit level.

PIPE STRENGTH CALCULATIONS - STORM							
PIPE REFERENCE	PIPE dia mm	DEPTH OF COVER MIN m MAX m		BEDDING FACTOR	DESIGN LOAD We K/m	We x 1.25 Bedding Factor	REQ PIPE STR.
F1- F2	150	1.200	1.940	2.2	21.50	12.22	Vitrified Clay
F2- F3	150	1.901	1.940	2.2	21.50	12.22	Vitrified Clay
F3- F4	150	1.822	1.901	2.2	21.50	12.22	Vitrified Clay
F4- F5	150	1.822	1.939	2.2	21.50	12.22	Vitrified Clay
F5- F6	150	1.939	2.289	2.2	21.50	12.22	Vitrified Clay
F6- F9	150	2.289	2.412	2.2	21.50	12.22	Vitrified Clay
F7- F8	150	1.750	2.021	2.2	21.50	12.22	Vitrified Clay
F8- F9	150	2.021	2.412	2.2	21.50	12.22	Vitrified Clay
F9- F10	150	2.350	2.412	2.2	21.50	12.22	Vitrified Clay
F10- P5	150	2.350	2.883	2.2	21.50	12.22	Vitrified Clay
F11- F12	150	1.480	1.980	2.2	21.50	12.22	Vitrified Clay