P/2018/00438
Received
29/03;2018

MANHOLE SCHEDULE

Sheet 1 of 5

Manhole Number	Coordinates	Cover Level	Depth To Invert	Pipe No.	Code	Inverts	Diams Inv-soff	Manhole Size	Manhole Type	Cover Type
F1	E. 421686.864 N. 321207.625	47.710	1.560	0	1.000	46.150	150	1200	B	D400
F3	E. 421712.050 N. 321187.402	47.761	1.865	1 0	1.000 1.001	45.896 45.896	150 150	1200	B	D400
F5	E. 421759.763 N. 321147.974	47.952	2.829	1 0	1.001 1.002	45.123 45.123	150 150	1200	B	D400
F7	E. 421776.106 N. 321134.227	47.758	2.778	1 0	1.002 1.003	44.980 44.980	150 150	1200	B	D400
F9	E. 421778.963 N. 321124.236	47.640	2.729	1 0	1.003 1.004	44.911 44.911	150 150	1200	B	D400
F11	E. 421776.071 N. 321113.596	47.519	2.682	1 2 0	1.004 2.004 1.005	44.837 44.837 44.837	150 150 150	1200	B	D400
F13	E. 421782.514 N. 321110.334	47.650	2.861	1 2 0	1.005 3.002 1.006	44.789 44.789 44.789	150 150 150	1200	B	D400
F15	E. 421786.042 N. 321109.305	47.600		1	1.006	44.765	150	FW PACKAGE PUMP STATION		D400
F21	E. 421658.766 N. 321170.053	48.006	1.406	0	2.000	46.600	150	1200	E	D400
F23	E. 421695.133 N. 321140.989	47.970	1.952	1 0	2.000 2.001	46.018 46.018	150 150	1200	B	D400

MANHOLE SCHEDULE

Sheet 2 of 5

Manhole Number	Coordinates	Cover Level	Depth To Invert	Pipe No.	Code	Inverts	Diams Inv-soff	Manhole Size	Manhole Type	Cover Type
F25	E. 421730.367 N. 321110.890	47.922	2.213	1 0	2.001 2.002	45.709 45.709	150 150	1200	B	D400
F27	E. 421748.394 N. 321095.811	47.674	2.122	1 0	2.002 2.003	45.552 45.552	150 150	1200	B	D400
F29	E. 421766.134 N. 321100.966	47.534	2.105	1 0	2.003 2.004	45.429 45.429	150 150	1200	B	D400
F31	E. 421815.229 N. 321104.243	47.743	1.743	0	3.000	46.000	150	1200	B	D400
F33	E. 421784.376 N. 321094.673	47.356	1.760	1 0	3.000 3.001	45.596 45.596	150 150	1200	B	D400
F35	E. 421779.847 N. 321107.234	47.650	2.143	1 0	3.001 3.002	45.507 45.507	150 150	1200	B	D400
F41	E. 421723.479 N. 321297.771	48.162	1.562	0	1.000	46.600	150	1200	B	Unspec
F43	E. 421739.771 N. 321295.872	47.75	1.413	1	1.000	46.412 46.337	150 225	1200	B	D400

New MH Built over Existing FWS

MANHOLE SCHEDULE

Sheet 3 of 5

Manhole Number	Coordinates	Cover Level	Depth To Invert	Pipe No.	Code	Inverts	Diams Inv-soff	Manhole Size	Manhole Type	Cover Type
S2	E. 421721.002 N. 321293.461	48.159	1.219	0	1.000	46.940	225	1200	E	D400
S4	E. 421705.837 N. 321284.915	48.016	1.111	1 0	1.000 1.001	46.905 46.905	225 225	1200	E	D400
S6	E. 421691.907 N. 321270.459	48.089	1.224	1 0	1.001 1.002	46.865 46.865	225 225	1200	E	D400
S8	E. 421679.140 N. 321250.450	47.931	1.113	1 0	1.002 1.003	46.818 46.818	225 225	1200	E	D400
S10	E. 421673.683 N. 321231.777	47.716	0.937	1 0	1.003 1.004	46.779 46.779	225 225	1200	D	D400
S12	E. 421672.690 N. 321221.108	47.685	0.927	1 0	1.004 1.005	46.758 46.758	225 225	1200	D	D400
S14	E. 421674.582 N. 321210.418	47.815	1.079	1 0	1.005 1.006	46.736 46.736	225 225	1350	E	D400
S16	E. 421688.719 N. 321208.639	47.724	1.016	1 0	1.006 1.007	46.708 46.708	225 225	1200	E	D400
S18	E. 421723.478 N. 321178.964	47.646	1.029	1 2 0	2.000 1.007 1.008	46.617 46.617 46.617	225 225 225	1200	E	D400
S20	E. 421744.949 N. 321161.180	47.784	1.223	1 2 0	1.008 3.000 1.009	46.561 46.561 46.561	225 225 225	1200	E	D400

MANHOLE SCHEDULE

Sheet 4 of 5

Manhole Number	Coordinates	Cover Level	Depth To Invert	Pipe No.	Code	Inverts	Diams Inv-soff	Manhole Size	Manhole Type	Cover Type
S22	E. 421776.858 N. 321136.032	47.766	1.286	1 2 0	4.000 1.009 1.010	46.480 46.480 46.480	225 225 225	1200	E	D400
S24	E. 421779.752 N. 321127.108	47.695	1.234	1 0	1.010 1.011	46.461 46.461	225 225	1200	E	D400
S26	E. 421816.412 N. 321108.448	47.855	1.476	1 2 0	1.011 5.006 1.012	46.379 46.379 46.379	225 225 225	1350	E	D400
S28	E. 421840.912 N. 321097.191	47.730	1.405	1 2 0	8.000 1.012 1.013	46.325 46.325 46.325	225 225 225	1200	E	D400
S30	E. 421842.885 N. 321090.899	47.579	1.267	1 2 0	1.013 9.000 1.014	46.312 46.312 46.312	225 225 225	3000	CONTROL CHAMBER	D400
S32	E. 421845.517 N. 321086.576	47.40	0.900	1	1.014	46.300	225		HEADWALL	
S34	E. 421654.741 N. 321188.377	47.762	0.970	0	5.000	46.792	225	1350	D	D400
S36	E. 421656.545 N. 321173.826	47.990	1.227	1 0	5.000 5.001	46.763 46.763	225 225	1200	E	D400
S38	E. 421691.406 N. 321145.349	47.980	1.307	1 0	5.001 5.002	46.673 46.673	225 225	1200	E	D400
S40	E. 421720.975 N. 321120.916	47.818	1.222	1 0	5.002 5.003	46.596 46.596	225 225	1200	E	D400
S42	E. 421746.999 N. 321098.656	47.739	1.211	1 2 0	5.003 6.000 5.004	46.528 46.528 46.528	225 225 225	1200	E	D400
S44	E. 421767.260 N. 321090.708	47.455	0.971	1 2 0	7.000 5.004 5.005	46.484 46.484 46.484	225 225 225	1350	D	D400
S46	E. 421807.442 N. 321103.010	47.629	1.229	1 0	5.005 5.006	46.400 46.400	225 225	1200	E	D400
S701	E. 421764.046 N. 321101.206	47.517	1.011	0	7.000	46.506	225	1200	E	D400

SEVERN TRENT WATER MANHOLE REQUIREMENTS FOR SEWERS FOR ADOPTION 6TH EDITION - ADOPTIONS & DIVERSIONS

GENERAL REQUIREMENTS

COPIES OF DELIVERY NOTES FOR UPVCRETE AND PIPE BEDDING WILL BE REQUIRED INTERMITTENTLY AS THE JOB PROGRESSES. ALL OTHER COMPONENT UNITS MUST BE KITE-MARKED.

CHANNELS AND BENCHING

ALL CHAMBERS WITH PIPE SIZES 150MM, 225MM, 300MM MUST HAVE SWEPT BENDS AND CHANNELS. ALL BENCHING TO BE A *MINIMUM 40MM THICK* GRANOLITHIC UPVCRETE *TROWELLED TO A SMOOTH FINISH.*

IRONWORK IN MANHOLES

IF THE CHAMBER IS LESS THAN 3M DEEP WE REQUIRE DOUBLE ENCAPSULATED STEP RUNGS UNLESS OTHERWISE APPROVED. IF THE CHAMBER IS OVER 3M DEEP WE REQUIRE *HOT DIPPED GALVANISED MILD STEEL LADDERS*. THERE MUST BE 900MM BETWEEN LADDER AND BACK OF SHAFT. DEPTH IS MEASURED FROM FINISHED COVER LEVEL TO THE TOP OF THE BENCHING. THE MAXIMUM DISTANCE BETWEEN COVER LEVEL AND THE FIRST STEP MUST BE 675MM.

BRICKWORK

MIN 2 MAX 4 COURSES UNDER FRAME AND MUST BE SOLID CLASS B ENGINEERING BRICKS OR UPVCRETE SPACING RINGS NEATLY POINTED UP. ENGLISH BOND TO BE USED ON ALL BRICKWORK. SULPHATE RESISTING CEMENT MUST BE USED IN ALL LOCATIONS.

COVER AND FRAMES

COVER SLAB OPENING, COVER AND FRAMES MUST BE 675 X 675 *UNLESS OTHERWISE APPROVED*. DN400 SHALL BE USED AT ALL LOCATIONS. ON SPINE ROADS MUST BE 150MM DEEP. ON RESIDENTIAL CUL-DE-SACS 100MM MAY BE USED SUBJECT TO APPROVAL. FRAMES FOR MANHOLE COVERS SHOULD BE BEDDED IN A POLYESTER RESIN BEDDING MORTAR IN ALL SITUATIONS WHERE COVERS ARE SITED IN NRSWA ROAD CATEGORIES I, II OR III.

'INFILL' TYPE COVERS SHOULD NOT BE USED.

IN BLOCK PAVED AREAS 150MM DEEP FRAMES MUST BE USED (IN ACCORDANCE WITH CL 2.8.6 SFA6 P.25)

LATERALS

THEY SHOULD BE LAID TO THE SAME STANDARD AS PUBLIC SEWERS. THEY SHOULD HAVE NO CHANGES OF LINE OR GRADIENT BETWEEN THE SEWER AND THE DEMARCATION CHAMBER. THEY SHOULD HAVE AN ADOPTABLE MANHOLE AS THE DEMARCATION CHAMBER UNLESS THERE IS ONLY ON PROPERTY WHEN A PLASTIC CHAMBER TO BS7158 IS ALLOWED. LOCKABLE B125 AND A15 COVERS MAY BE ALLOWED IN CERTAIN LOCATIONS SUBJECT TO APPROVAL. THE DEMARCATION SHOULD BE INSIDE THE BOUNDARY OF THE PROPERTY, NO MORE THAN 1M INSIDE THE BOUNDARY, PREFERABLY IN THE DRIVEWAY AND NOT IN THE WHEEL TRACKS OF VEHICLES.

GENERAL NOTES

1. LEVELS INDICATED IN BLOCKS ARE FINISHED FLOOR LEVELS WHICH ARE GENERALLY 150MM ABOVE GROUND LEVEL.
2. ROADS FOOTPATHS AND PARKING BAYS WHICH FORM PART OF THE HIGHWAY TO BE ADOPTED UNDER SECTION 38 OF THE HIGHWAYS ACT 1980 SHALL COMPLY WITH THE RELEVANT COUNCIL HIGHWAY SPECIFICATION.
3. SEWERS TO BE ADOPTED UNDER SECTION 104 OF THE WATER INDUSTRIES ACT 1991 SHALL COMPLY WITH THE WATER AUTHORITIES ASSOCIATION "SEWERS FOR ADOPTION 6TH EDITION AND COMBINED ADDENDUM".
4. ALL PIPES TO BE USED IN ADOPTABLE SEWERS SHALL BE EITHER UPVCWARE TO BS EN 295-1:1991 AND BS 65:1991 (surface water pipes only), UPVCRETE TO BS 5911-1:2002 OR UNPLASTICISED PVC PIPES TO BS 4660/ BS EN1401-1:1998 WITH CLASS S BEDDING UNLESS OTHERWISE STATED. THE MINIMUM REQUIREMENT FOR PIPES TO BE USED IN ADOPTABLE SEWERS IS TO BE AS FOLLOWS:

4.1. 150MM DIA - CLASS 187 - MIN CRUSHING STRENGTH 28KN/M
225MM DIA - CLASS 120 - MIN CRUSHING STRENGTH 28KN/M
300MM DIA - CLASS 120 - MIN CRUSHING STRENGTH 36KN/M

4.2. LARGER THAN 300MM DIA - HIGH STRENGTH UPVCRETE. WHERE COVER TO PIPES IS LESS THAN 1200MM UNDER CARRIAGEWAY OR VEHICULAR ACCESS AREAS THEY SHALL BE SURROUNDED WITH 150MM GRADE C20 UPVCRETE, FLEXIBILITY OF JOINTS BEING MAINTAINED BY USING COMPRESSIBLE FIBREBOARD AT INTERVALS NOT EXCEEDING 5M.

5. ALL EXISTING DRAINAGE INVERT LEVELS, DIAMETERS AND LOCATIONS ARE TO BE CHECKED BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF ANY PROPOSED DRAINAGE WORK. ANY DIFFERENCE BETWEEN ACTUAL AND DRAWN DETAILS IS TO REPORTED IMMEDIATELY.
6. POSITIONS OF EXISTING SERVICES/STAUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED SEWERS IS TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.

MINIMUM DIMENSIONS FOR MANHOLES

Type	Size of largest pipe (DN)	Min internal dimensions[1] Rectangular length and width	Circular diameter	Min clear opening size[1] Rectangular length and width	Circular diameter
Manhole < 1.5m deep to soffit	≤ 150 225 300 >300	750 x 675[7] 1200 x 675 1200 x 750 1800 x (DN+450)	1000[7] 1200 1200 The larger of 1800 or (DN+450)	750 x 675[2] 1200 x 675[2]	na[3]
> 1.5m deep to soffit	≤ 225 300 375-450 >450	1200 x 1000 1200 x 1075 1350 x 1225 1800 x (DN+775)	1200 1200 1200 The larger of 1800 or (DN+775)	675 x 675	600
Manhole shaft[4] > 3.0m deep to soffit of pipe	Steps[5]	1050 x 800	1050	675 x 675	600
	Ladder[5]	1200 x 800	1200		
	Winch[6]	900 x 800	900	675 x 675	600

Notes:
1) Larger sizes may be required for manholes on bends or where there are junctions.
2) May be reduced to 600 by 600 where required by highway loading considerations, subject to a safe system of work being specified.
3) Not applicable due to working space needed.
4) Minimum height of chamber in shafted manhole 2m from benching to underside of reducing slab.
5) Min clear space between ladders or steps and the opposite face of the shaft should be approximately 900mm.
6) Winch only - no steps or ladders, permanent or removable
7) The minimum size of any manhole serving a sewer (i.e any drain serving more than one property) should be 1200 mm x 675 mm rectangular or 1200 mm diameter

NOTE:-

PIPE BEDDING CALCULATIONS & DEFORMATION CALCULATIONS FOR THE UPVC PIPES ARE TO BE PROVIDED BY THE PIPE MANUFACTURER TO SEVERN TRENT WATER AS SOON AS THE CONTRACTOR AND PIPE SUPPLIER HAS BEEN CONFIRMED.

The Contractor is to check and verify all building and site dimensions, levels and sewer invert levels at connection points before work starts. The Contractor is to comply in all respects with current Building Legislation, British Standard Specifications , Building Regulations, Construction (Design & Management) Regulations, Party Wall Act, etc. whether or not specifically stated on this drawing. This drawing must be read with and checked against any structural, geotechnical or other specialist documentation provided. This drawing is not intended to show details of foundations, ground conditions or ground contaminants. Each area of ground relied upon to support any structure depicted (including drainage) must be investigated by the Contractor. A suitable method of foundation should be provided allowing for existing ground conditions. Any suspect or fluid ground, contaminates on or within the ground, should be further investigated by a suitable expert. Any earthwork constructions shown indicate typical slopes for guidance only & should be further investigated by a suitable expert. Where existing trees / structures are to be retained they should be subject to a full specialist inspection for safety. All trees are to be planted so as to ensure they are a minimum of 5 metres from buildings. A suitable method of foundation is to be provided to accommodate the proposed tree planting. Residential & Commercial Engineering Limited do not accept any responsibility for any losses (financial or otherwise) to any Client or third party arising out of the Clients (be it Developer or Contractor but not limited thereto) non-compliance with afore mentioned provisos.

Notes:

PRELIMINARY
SUBJECT TO CLIENT & TECHNICAL APPROVAL

GENERAL NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE SPECIFIED.
2. ALL WORKS TO BE TO THE SPECIFICATION FOR HIGHWAY WORKS AND SCC SPECIFICATION.
3. LEVEL OF EXISTING ROAD AT POINT OF TIE IN WITH PROPOSED SITE MUST BE VERIFIED PRIOR TO COMMENCEMENT OF WORKS.
4. ALL ADOPTABLE DRAINAGE MUST COMPLY WITH SEWERS FOR ADOPTION 6TH EDITION AND SEVERN TRENT WATER REQUIREMENTS.
5. POLISHED STONE VALUES, AGGREGATE SIZES, AGGREGATE ABRASION VALUES AND PENETRATION VALUES OF ALL SURFACE COURSE MATERIALS MUST BE CHECKED WITH HIGHWAY AUTHORITY AND COMPLY WITH ALL CODES OF PRACTICE PRIOR TO ORDERING AND LAYING OF MATERIALS.
6. POSITIONS OF EXISTING SERVICES/STAUTORY UNDERTAKERS APPARATUS ADJACENT TO OR CROSSING PROPOSED SEWERS IS TO BE CHECKED BY THE CONTRACTOR PRIOR TO STARTING WORK.
7. A SCREEN IS TO BE FITTED OVER THE OUTGOING PIPE TO THE LAST NEW SURFACE AND FOUL MANHOLES BEFORE ENTERING THE EXISTING SEWERS IN ACCORDANCE WITH SEWERS FOR ADOPTION 6TH EDITION. THE SCREEN SHALL ONLY BE REMOVED ONCE ON-SITE CONSTRUCTION WORKS HAVE BEEN COMPLETED.
8. WHERE IT IS PROPOSED TO LAY FOUL SEWERS ABOVE STORM & TO AVOID CROSS CONTAMINATION; THE FOUL SEWER SHALL BE WRAPPED WITH AN IMPERMEABLE GEOTEXTILE MEMBRANE.

S106 APPLICATION

1. A SECTION 106 APPLICATION TO SEVERN TRENT WATER MUST BE COMPLETED FOR THE RE USE OF ANY EXISTING CONNECTION INTO THE EXISTING PUBLIC SEWERAGE SYSTEM OR THE CONSTRUCTION OF A NEW CONNECTION.
2. AN APPLICATION WILL BE REQUIRED FOR THE FOUL AND SURFACE WATER DRAINAGE ARRANGEMENTS AND THIS SHOULD BE COMPLETED BY THE CONTRACTOR.

Rev	Description	Date	Drawn	Check

Revisions:

Lioncourt Homes

RACE

RESIDENTIAL & COMMERCIAL ENGINEERING

Drawing Status:
Subject to the following approvals:
S111 - Subject to Technical Approval from Staffordshire CC Highways
S104 - Subject to Technical Approval from Severn Trent Water
S106 - Developer to complete application/approval with STW.
Consent to Discharge - Developer to complete application/approval with SCC Land Drainage Team

Client: LIONCOURT HOMES

Project: TATENHILL LANE, BRANSTON

Title: MANHOLE SCHEDULES

Job Number. RACE/LCH/TLB
Drawing No. ENG_210
Revision. #

Scale: NTS @ A0
Date: JUNE ' 17
Drawn by: SM
Checked by: GJ

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