SURFACE WATER MANHOLE SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COVER & FRAME	COORDINATES
1	225Ø - 137.753 100Ø - 137.778 150Ø - 137.728 300Ø - 137.578	138.778	1.200	B	1.200	D400	600 x 600	E434923.167 N400438.776
2	300Ø - 136.778 150Ø - 136.928 375Ø - 136.703	138.361	1.658	B	1.500	D400	600 x 600	E434912.054 N400476.177
3	375Ø - 136.587 3500Ø - 132.161	138.486	6.325	SPECIAL ACCESS SHAFT	3.600	D400	600 x 600	E434921.826 N400503.590
4	3500Ø - 132.136 300Ø - 137.168 3500Ø - 132.136	138.390	6.254	SPECIAL ACCESS SHAFT	3.600	D400	600 x 600	E434925.124 N400513.176
5	225Ø - 137.598 150Ø - 137.623 225Ø - 137.498	138.623	1.125	B	1.200	D400	600 x 600	E434885.304 N400532.736
6	225Ø - 137.343 150Ø - 137.418 100Ø - 137.468 150Ø - 137.418 300Ø - 137.268	138.761	1.493	B	1.200	D400	600 x 600	E434901.280 N400520.685
7	100Ø - 137.363 100Ø - 137.363	138.573	1.210	B	1.200	D400	600 x 600	E434898.662 N400512.405
8	150Ø - 137.515 150Ø - 137.515	138.565	1.050	B	1.200	D400	600 x 600	E434903.577 N400530.135
9	3500Ø - 132.023 300Ø - 135.989 225Ø - 136.064 3500Ø - 132.023	137.935	5.912	SPECIAL ACCESS SHAFT	3.600	D400	600 x 600	E434938.807 N400556.145
10	150Ø - 136.438 150Ø - 136.338	137.323	0.985	B	1.200	D400	600 x 600	E434918.715 N400567.500
11	150Ø - 136.185 150Ø - 136.185 150Ø - 136.845 225Ø - 136.110	137.830	1.720	B	1.200	D400	600 x 600	E434931.140 N400558.617
12	150Ø - 137.256 150Ø - 137.256	138.313	1.057	B	1.200	D400	600 x 600	E434923.234 N400547.487
13	225Ø - 137.706 225Ø - 137.606	138.754	1.148	B	1.200	D400	600 x 600	E434944.964 N400519.698
14	225Ø - 136.352 150Ø - 136.427 150Ø - 136.427 300Ø - 136.277	137.992	1.715	B	1.200	D400	600 x 600	E434951.432 N400541.720
15	150Ø - 136.893 150Ø - 136.893	138.070	1.177	B	1.200	D400	600 x 600	E434965.409 N400534.426
16	3500Ø - 131.922 3500Ø - 131.922	137.190	5.268	SPECIAL ACCESS SHAFT	3.600	D400	600 x 600	E434951.296 N400594.610
17 (FLOW CONTROL)	3500Ø - 131.884 300Ø - 135.084 225Ø - 135.083 225Ø - 131.834	136.584	4.750	SPECIAL ACCESS SHAFT	3.600	D400	600 x 600	E434955.272 N400609.410
18	150Ø - 136.046 150Ø - 136.046	137.320	1.274	PPIC	0.450	D400	12 x 12	E435002.714 N400568.964
19	150Ø - 135.863 225Ø - 135.788 150Ø - 135.863 300Ø - 135.713	137.312	1.599	B	1.200	D400	600 x 600	E434985.233 N400574.481
20	300Ø - 135.648 150Ø - 135.798 300Ø - 135.648	137.360	1.712	B	1.200	D400	600 x 600	E434989.577 N400590.238
21	300Ø - 135.556 150Ø - 135.706 300Ø - 135.556	136.817	1.261	B	1.200	D400	600 x 600	E434969.484 N400601.467
22	150Ø - 135.437 225Ø - 135.362	136.778	1.416	B	1.200	D400	600 x 600	E434946.468 N400621.539
23	225Ø - 135.306 225Ø - 135.306	137.029	1.723	B	1.200	D400	600 x 600	E434944.923 N400611.941
24	225Ø - 131.314 2100Ø - 131.314	136.364	5.050	B	3.000	D400	600 x 600	E434957.203 N400620.317

SURFACE WATER MANHOLE SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COVER & FRAME	COORDINATES
1	150Ø - 136.534	137.344	0.810	B	1.200	D400	600 x 600	E434990.641 N400584.693
2	150Ø - 136.353 150Ø - 136.353	137.117	0.764	B	1.200	D400	600 x 600	E434975.102 N400593.968
3	150Ø - 136.064 150Ø - 136.064	137.056	0.992	B	1.200	D400	600 x 600	E434946.880 N400600.161
4	150Ø - 135.537 150Ø - 135.537	137.393	1.857	B	1.200	D400	600 x 600	E434934.517 N400585.187
5	150Ø - 135.038 150Ø - 137.231 150Ø - 135.038	138.225	3.187	B	1.200	D400	600 x 600	E434923.743 N400536.512
6	150Ø - 137.492	138.542	1.050	B	1.200	D400	600 x 600	E434916.913 N400556.224
7	150Ø - 136.460	137.507	1.047	B	1.200	D400	600 x 600	E434972.786 N400549.144
8	150Ø - 136.381 150Ø - 136.381	137.709	1.328	B	1.200	D400	600 x 600	E434980.355 N400546.889
9	150Ø - 135.993 150Ø - 137.686 150Ø - 135.993	138.886	2.893	B	1.200	D400	600 x 600	E434981.579 N400508.143
10	150Ø - 137.759	138.796	1.037	B	1.200	D400	600 x 600	E434975.974 N400509.868
11	150Ø - 135.571 150Ø - 137.399 150Ø - 135.571	138.820	3.249	B	1.200	D400	600 x 600	E434968.667 N400467.976
12	150Ø - 138.100	138.823	0.723	PPIC	0.450	D400	12 x 12	E434948.358 N400420.973
13	150Ø - 138.037 150Ø - 138.037	138.826	0.789	PPIC	0.450	D400	12 x 12	E434953.152 N400419.392
14	150Ø - 134.946 150Ø - 134.946	138.665	3.719	B	1.200	D400	600 x 600	E434909.179 N400487.074
EXCW1	150Ø - 134.655 150Ø - 134.655	138.484	3.829	B	1.200	D400	600 x 600	E434894.257 N400512.099

GENERAL SAFETY NOTES:

1. WHERE THE BASE (ROAD BASE) HAS BEEN USED AS A TEMPORARY RUNNING SURFACE DURING THE CONTRACT IT SHALL BE THOROUGHLY CLEANED AND POWER WASHED AS NECESSARY. AFTER DRYING AND IMMEDIATELY BEFORE THE BINDER COURSE IS LAID A TACK COAT OF BITUMEN EMULSION CLASS A1-40 OR K1-40 TO BS434 SHALL BE APPLIED AT A RATE OF 0.35-0.55 LITRES/SQ METER.
2. ALL RADIUS KERBS WITH A RADIUS OF 12m OR LESS SHALL BE FORMED WITH PROPRIETARY RADIUS KERBS.

HEALTH & SAFETY:

1. CONTRACTOR SHOULD BE AWARE OF GENERAL CONSTRUCTION RISKS TO PREVENT SLIPS, TRIPS AND FALLS AND TAKE NECESSARY PRECAUTIONS WITHOUT SPECIAL INSTRUCTION.

ROADS & DRAINAGE

2. CONTRACTOR TO PROVIDE TRENCH SUPPORTS AS APPROPRIATE AND ENSURE THAT PLANT REMAINS A SAFE DISTANCE FROM TRENCHES PRIOR TO INSTALLING DRAINAGE
3. THE TIME THAT EXCAVATIONS ARE OPEN ON SITE SHOULD BE KEPT TO A MINIMUM AND ALL TRENCHES SHOULD BE SURROUNDED BY A BARRIER.
4. CONNECTIONS TO EXISTING SEWERS TO BE MADE BY APPROVED CONTRACTOR ONLY.
5. CONTRACTOR TO MAKE OPERATIVES AWARE OF ASSOCIATED DANGERS TO HEALTH SUCH AS LEPTOSPIROSIS (WEILS DISEASE) AND RECOMMENDED PRECAUTIONS. ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING TO BE PROVIDED AS REQUIRED.
6. UNFINISHED MANHOLES MUST BE COVERED WITH LOAD BEARING MATERIALS AND SURROUNDED WITH BARRIER.

PIPES & CABLES

7. CONTRACTOR TO OBTAIN ALL SERVICE RECORDS PRIOR TO WORKS COMMENCING.
8. SERVICE RECORDS TO BE REFERRED TO PRIOR TO WORK COMMENCING. CONTRACTOR TO PROCEED WITH CAUTION AND SERVICES TO BE LOCATED BY HAND DIG AND PROTECTED ACCORDINGLY.

EXCAVATION/FILL

9. CONTRACTOR TO ENSURE RELEVANT MEASURES ARE TAKEN TO KEEP PLANT AND PEOPLE A SAFE DISTANCE FROM STEEP SLOPES DURING THE WORKS.
10. CONTRACTOR TO ENSURE THAT PROCEDURES ARE IN PLACE TO KEEP PEOPLE A SAFE DISTANCE FROM WORKING PLANT WHERE NECESSARY.
11. CONTRACTOR TO REFER TO GROUND INVESTIGATION REPORT FOR CONTAMINATION TESTS AND TO PROVIDE ADEQUATE WELFARE FACILITIES AND PROTECTIVE CLOTHING AS REQUIRED.

DRAINAGE SPECIFICATIONS FOR YORKSHIRE WATER

1. ALL ADOPTABLE SEWER WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "CODE FOR ADOPTION", THE RELEVANT BRITISH/EUROPEAN AND YORKSHIRE WATER'S STANDARDS/REQUIREMENTS/ADDENDUM TO THE MECHANICAL AND ELECTRICAL SPECIFICATION AND KITEMARKED.
2. MANHOLE COVERS SHALL/MUST HAVE A CLEAR OPENING OF 600mm AND SHALL BE CLASS D400 TO BS EN 124 WITH 150mm DEEP FRAMES IN HIGHWAYS.
3. FILLED GROUND MUST BE FILLED AND CONSOLIDATED UNDER THE SUPERVISION AND TO THE SATISFACTION OF YORKSHIRE WATER BEFORE ANY SEWER WORKS ARE CARRIED OUT.
4. YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAINS AND DRAINAGE RUN-OFF INTO THE PUBLIC SEWER NETWORK OR ADOPTABLE DRAINAGE SYSTEM (**DIRECTLY OR IN-DIRECTLY**), AN ALTERNATIVE METHOD OF DISPOSAL OF THE LAND DRAINAGE RUN-OFF 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 DRAINS AND DRAINAGE RUN-OFF.
5. COVER SLABS MUST CARRY THE BSI KITEMARK OR WILL BE REJECTED BY YORKSHIRE WATER INSPECTOR. WHERE THE CLEAR OPENING OF THE KITEMARKED PRODUCT IS DIFFERENT TO THAT OF THE COVER AND FRAME, A LOADING 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.
6. SULPHATE RESISTANT CEMENT (**C20-DC2**) AND PRECAST CONCRETE PRODUCTS MUST BE USED OR A LABORATORY REPORT PROVIDED PROVING THAT SUCH PRECAUTIONS ARE NOT NECESSARY.
7. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1m AND MANHOLES 0.5m FROM KERB FACES AND SERVICE MARGINS.
8. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANOPY AT MATURE HEIGHT.
9. SEWERS TO BE LAID IN CLASS 'S' BEDDING (150mm GRANULAR BED AND SURROUND). WHERE DEPTH OF COVER TO TOP OF THE SEWER IS LESS THAN 1.2m IN HIGHWAYS AND VERGES (OR LESS THAN 900mm IN NONE VEHICULAR ACCESS AREAS) THEN A CONCRETE SLAB SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
10. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (**TABLE A2**).
11. THE CHAMBER SIZE OF MANHOLES WITH MORE THAN ONE CONNECTION IN THEM MAY NEED TO BE INCREASED AN INCREMENT TO ACCOMMODATE THE CONNECTIONS AND BENDS.
12. YORKSHIRE WATER POLICY IS THAT TYPE 'C' BRICK MANHOLES AND 1050mm DIA MANHOLE RINGS ARE NOT PREFERRED. INSTEAD IT IS PREFERRED THAT YOU USE A TYPE 'B' MANHOLE WITH 1200mm DIA OR 1500mm DIA RINGS, WITH THE OPENING SITED OVER THE CHANNEL WHERE DEPTH OF COVER TO PIPE SOFFIT IS 1 - 1.5m.
13. ALL ADOPTABLE PLASTIC SEWER PIPES TO BE KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN13476). ADOPTABLE PLASTIC SEWER PIPES TO BE LAID IN MAXIMUM 3 METRE LENGTHS UNLESS THERE IS A SPECIFIC OPERATIONAL NEED TO LAY LONGER LENGTHS. PLASTIC CHANNEL SECTIONS IN MANHOLES ARE NOT ACCEPTABLE AND YORKSHIRE WATER WOULD PREFER CLAYWARE CHANNEL IN MANHOLES. PLASTIC CHANNELS ARE DIFFICULT TO SET IN CONCRETE BECAUSE THEY FLOAT AND A SATISFACTORY FINISH CANNOT BE OBTAINED ON THE BENCHING.
14. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE AS FOLLOWS: 100mm DIA. 40kN/m, 150mm DIA 40kN/m, 225mm DIA 45kN/m AND 300mm DIA. 72kN/m. THE MINIMUM CRUSHING STRENGTH FOR CONCRETE PIPES SHOULD BE ≥CLASS 120 TO EN 1916/BS5911-1 2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN13476.
15. 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.

OTHER DRAINAGE NOTES

16. ALL PRIVATE DRAINAGE WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH BUILDING REGULATIONS 2002 EDITION.
17. CONTRACTOR TO ESTABLISH POSITION SIZE AND DEPTH OF ALL EXISTING SEWERS AND SERVICES PRIOR TO COMMENCEMENT ON SITE.
18. THE CONTRACTOR SHALL ALLOW FOR THE PROTECTION, TEMPORARY AND PERMANENT SUPPORT, AND TEMPORARY AND PERMANENT DIVERSION WORKS, AS NECESSARY TO ALL EXISTING SERVICES.
19. THE CONTRACTOR SHALL ALLOW FOR ALL TRAFFIC MANAGEMENT IN CONNECTION WITH ROAD AND SEWER WORKS.
20. THE CONTRACTOR SHALL ALLOW FOR KEEPING SEWER TRENCHES AND EXCAVATIONS AS DRY AS PRACTICABLE BY PUMPING FROM TEMPORARY SUMPS AND DEWATERING AS APPROPRIATE. THE POINT AND METHOD OF DISCHARGE TO BE AGREED WITH THE DRAINAGE AUTHORITY.
21. FOR PIPE SPECIFICATION PLEASE REFER TO ADDITIONAL NOTES.
22. VITRIFIED CLAY PIPES AND FITTINGS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN295 AND BS 65 RESPECTIVELY AND BE KITEMARKED. ALL PIPES SHALL BE EXTRA STRENGTH TO BS 65 OR EQUIVALENT BS EN295 PIPE CRUSHING STRENGTH.
23. PRECAST CONCRETE PRODUCTS SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS 5911 AND BE KITEMARKED. CONCRETE PIPES TO BE CLASS 120 UNLESS NOTED OTHERWISE.
24. GULLY GRATES AND FRAMES SHALL COMPLY WITH THE RELEVANT PROVISIONS OF BS EN124 AND BE OF A NON-ROCKING DESIGN WITH CAPTIVE HINGE ACCESS AND BE KITEMARKED. LOAD CLASS D400 FOR ROADS AND SERVICE YARD AREAS. CLASS C250 TO BE USED IN CAR PARKING AREAS.
25. BACKFILLING AND REINSTATEMENT TO TRENCHES IN PUBLIC HIGHWAYS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS AND SPECIFICATIONS OF THE ADOPTING AUTHORITY, OR, IN THE ABSENCE OF SUCH, IN ACCORDANCE WITH THE REQUIREMENTS OF "THE STREET WORKS REGULATIONS 1992" AND RELEVANT PROVISIONS OF H.A.U.C. "SPECIFICATION FOR THE REINSTATEMENT OF OPENINGS IN HIGHWAYS" JUNE 1992. BOTH UNDER SECTION 71 OF THE NEW ROADS AND STREET WORKS ACT 1991.
26. ALL TRADITIONAL RAINWATER PIPE DOWN COMERS TO DISCHARGE TO TRAPPED GULLIES.
27. ALL SIPHONIC DRAINAGE DOWN COMERS TO MANUFACTURER SPECIFICATION.
28. ALL ROAD GULLIES ARE TO BE TRAPPED GULLIES.
29. ALL GULLY LEADS TO BE 150mm DIAMETER.
30. ALL REDUNDANT EXISTING DRAINAGE TO BE GRUBBED UP OR GROUTED, ANY EXISTING LIVE DRAINAGE SHOULD BE REPORTED TO THE ENGINEER AND RECONNECTED.
31. ALL ROAD GULLIES & LEADS TO BE CLEARED OF DEBRIS UPON COMPLETION OF WORKS.
32. THE CONTRACTOR MUST ENSURE THAT ANY OF THE EXISTING DRAINAGE WHICH IS LIVE IS KEPT CLEAR OF DEBRIS AND SHOULD ALLOW FOR JETTING THROUGH THE NEW & EXISTING DRAINAGE UPON COMPLETION.
33. CONTRACTOR TO TAKE MEASURES TO PROTECT HIS OPERATIVES WITH RESPECT TO THE PRESENCE OF GAS IN SEWER TRENCHES AND MANHOLES THROUGH THE USE OF GAS MONITORING EQUIPMENT AND BREATHING APPARATUS AS REQUIRED.
34. CONTRACTOR TO APPLY FOR SEWER PERMITS AND ROAD OPENING PERMITS AS NECESSARY FROM THE APPROPRIATE AUTHORITIES, PRIOR TO COMMENCING WORKS.
35. WHERE PLASTIC PIPES ARE INSTALLED PRIOR TO GETTING APPROVAL THEN A LIGHT LINE CCTV SURVEY AND REPORT (ELECTRONIC DEFLECTION TESTING) OF THE PROSPECTIVELY ADOPTABLE SEWERS ARE REQUIRED PRIOR TO APPROVAL AT THE DEVELOPERS EXPENSE.
36. THERE SHOULD BE ENOUGH CLEARANCE TO ACCOMMODATE THE BEDDING FOR BOTH PIPES, APPROX. 300mm: IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY BE INCREASED.

Date	Revisions	Drawn	Checked	Rev
08/08/2023	ATTENUATION AMENDED, FLOW CONTROL DETAILS AMENDED	RPB	RO	3
05/07/2023	UPDATED TO SUIT ARCHITECT'S COMMENTS	RPB	RB	2
30/06/2023	FIRST ISSUE	RPB	RB	1

Dwg Status: PLANNING

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Client: CARNELL MANAGEMENT SERVICES LIMITED

Project: ROCKINGHAM
BIRDWELL

Title: PROPOSED MANHOLE SCHEDULES

DO NOT SCALE	Scale @ A1:	Drawn RPB	Checked RB	Date 30/06/2023
Job No Y22018		Dwg No D201		Rev 3