REFERENCE NUMBER: S104-2026-036

SURFACE WATER MANHOLE SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COORDINATES
SW1	300Ø - 45.900 150Ø - 46.050 300Ø - 45.900	47.900	2.000	B	1.200	D400 (600x600)	E437434.168 N410477.192
SW2	300Ø - 45.600 150Ø - 45.750 300Ø - 45.600	47.161	1.561	C	1.350	D400 (600x600)	E437440.444 N410432.906
SW3	300Ø - 45.400 300Ø - 45.400	47.000	1.600	C	1.350	D400 (600x600)	E437442.470 N410417.412
SW4	300Ø - 45.225 150Ø - 45.375 150Ø - 45.375 375Ø - 45.150	46.817	1.667	C	1.500	D400 (600x600)	E437408.155 N410411.704
SW5	375Ø - 44.750 150Ø - 44.975 375Ø - 44.750	46.402	1.652	C	1.350	D400 (600x600)	E437362.024 N410395.233
SW6	225Ø - 44.900 225Ø - 44.900	46.508	1.608	C	1.350	D400 (600x600)	E437380.491 N410351.527
SW7	300Ø - 44.450 150Ø - 44.600 300Ø - 44.400	46.321	1.921	FLOW CONTROL	1.800	D400 (1220x675)	E437365.441 N410344.220
SW8	300Ø - 44.150 150Ø - 44.300 300Ø - 44.150	45.859	1.709	C	1.350	D400 (600x600)	E437413.545 N410311.620
SW9	150Ø - 45.475 150Ø - 45.475 150Ø - 45.475 225Ø - 45.400	47.022	1.622	C	1.500	D400 (600x600)	E437456.070 N410408.302
SW10	225Ø - 45.250 225Ø - 45.250	46.881	1.631	C	1.350	D400 (600x600)	E437444.630 N410405.147
SW11	150Ø - 44.750 150Ø - 44.750 150Ø - 44.750	46.179	1.429	C	1.350	D400 (600x600)	E437480.351 N410353.654
SW12	225Ø - 44.375 150Ø - 44.450 150Ø - 44.450 150Ø - 44.450 300Ø - 44.300	45.896	1.596	C	1.500	D400 (600x600)	E437452.511 N410349.151
SW13	300Ø - 43.850 300Ø - 43.850 150Ø - 44.000 450Ø - 43.700	45.544	1.844	C	1.500	D400 (600x600)	E437457.526 N410319.278
SW14	150Ø - 43.950 150Ø - 43.950	45.441	1.491	C	1.350	D400 (600x600)	E437488.960 N410301.894
SW15	450Ø - 43.400 150Ø - 43.700 150Ø - 43.700 150Ø - 43.700 450Ø - 43.400	45.222	1.822	C	1.500	D400 (600x600)	E437461.135 N410297.586
SW16	150Ø - 43.900 225Ø - 43.900	45.305	1.405	C	1.350	D400 (600x600)	E437424.881 N410249.715
SW17	450Ø - 43.025 225Ø - 43.250 150Ø - 43.325 150Ø - 43.325 500Ø - 42.975	44.791	1.816	C	1.800	D400 (600x600)	E437458.442 N410255.813
SW18	150Ø - 43.350 150Ø - 43.350	44.730	1.380	C	1.350	D400 (600x600)	E437443.905 N410217.443
SW19	225Ø - 42.625 150Ø - 42.700 500Ø - 42.350 150Ø - 42.700 500Ø - 42.350	43.808	1.458	C	1.800	D400 (600x600)	E437474.525 N410222.978
SW20	225Ø - 45.475 150Ø - 45.550 300Ø - 45.400	47.153	1.753	C	1.350	D400 (600x600)	E437315.314 N410438.670
SW21	300Ø - 45.025 150Ø - 45.175 150Ø - 45.175 375Ø - 44.950	46.556	1.606	C	1.500	D400 (600x600)	E437332.227 N410391.794
SW22	375Ø - 44.850 375Ø - 44.850	46.443	1.593	C	1.350	D400 (600x600)	E437334.675 N410384.846
SW23	375Ø - 44.550 150Ø - 44.775 375Ø - 44.550	46.795	2.245	B	1.800	D400 (600x600)	E437259.991 N410347.904
SW24	300Ø - 44.900 150Ø - 45.050 300Ø - 44.900	46.440	1.540	C	1.350	D400 (600x600)	E437234.806 N410409.645
SW24A	300Ø - 44.750 300Ø - 44.750	46.568	1.818	B	1.200	D400 (600x600)	E437247.603 N410376.048
SW24B	450Ø - 44.500 300Ø - 44.650 450Ø - 44.500	46.977	2.477	B	1.500	D400 (600x600)	E437246.188 N410359.178
SW25	450Ø - 44.450 375Ø - 44.525 150Ø - 45.650 300Ø - 44.400	47.107	2.707	FLOW CONTROL	1.800	D400 (1220x675)	E437252.234 N410344.247
SW26	300Ø - 44.350 300Ø - 44.350	47.199	2.849	B	1.200	D400 (600x600)	E437258.324 N410334.027
SW27	300Ø - 44.200 150Ø - 45.800 150Ø - 45.550 300Ø - 44.200	47.131	2.931	B	1.500	D400 (600x600)	E437283.894 N410319.110
SW28	300Ø - 43.825 150Ø - 45.025 150Ø - 45.025 375Ø - 43.750	46.411	2.661	B	1.500	D400 (600x600)	E437356.328 N410272.690
SW29	375Ø - 43.475 150Ø - 44.750 450Ø - 43.400	46.030	2.630	B	1.350	D400 (600x600)	E437381.102 N410241.248
SW30	150Ø - 43.875 225Ø - 43.800	45.980	2.180	B	1.200	D400 (600x600)	E437363.998 N410206.625
SW31	450Ø - 43.300 225Ø - 43.525 150Ø - 44.650 150Ø - 44.650 450Ø - 43.300	45.895	2.595	B	1.500	D400 (600x600)	E437390.259 N410217.359
SW32	450Ø - 43.150 150Ø - 44.500 450Ø - 43.150	45.466	2.316	B	1.500	D400 (600x600)	E437406.143 N410176.143
SW33	450Ø - 42.200 150Ø - 42.500 450Ø - 42.200	43.949	1.749	C	1.500	D400 (600x600)	E437476.323 N410189.594
SW34	450Ø - 41.975 500Ø - 41.900 450Ø - 41.850	43.514	1.664	FLOW CONTROL	3.000	D400 (1220x675)	E437503.070 N410192.299

SURFACE WATER HEADWALL SCHEDULE

MH REFERENCE	INVERT LEVELS	TYPE	COORDINATES
SWHW1	375Ø - 44.650	SFA10 B	E437362.627 N410380.978
SWHW2	225Ø - 44.650	SFA6 A	E437372.543 N410358.771
SWHW3	300Ø - 44.550	SFA6 B	E437365.506 N410358.414
SWHW4	500Ø - 42.250	SFA10 C	E437480.698 N410217.302
SWHW5	500Ø - 42.050	SFA10 C	E437502.531 N410199.221
SWHW6	450Ø - 44.550	SFA10 B	E437229.660 N410362.482
SWHW7	450Ø - 41.800	SFA10 B	E437505.816 N410187.579

NOTES:
1. HEADWALL TYPES REFER TO ALTHON HEADWALL SPECS
2. FOR FULL FIXING INFORMATION REFER TO MANUFACTURERS INSTALLATION GUIDELINES.

SURFACE WATER DEMARCATION CHAMBER SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COORDINATES
SWDC1	150Ø - 46.650	47.987	1.337	PPIC 600	0.600	D400	E437440.175 N410477.927
SWDC2	150Ø - 46.250	47.278	1.028	PPIC	0.450	D400	E437445.375 N410434.166
SWDC3	150Ø - 45.900	47.080	1.180	PPIC	0.450	D400	E437407.432 N410417.146
SWDC4	150Ø - 45.900	46.937	1.037	PPIC	0.450	D400	E437410.257 N410406.889
SWDC5	150Ø - 45.700	46.701	1.001	PPIC	0.450	D400	E437360.946 N410403.102
SWDC6	225Ø - 45.250	46.524	1.274	PPIC 600	0.600	D400	E437384.403 N410349.203
SWDC7	150Ø - 45.200	46.613	1.413	PPIC	0.450	D400	E437358.905 N410340.018
SWDC8	150Ø - 44.900	46.054	1.154	PPIC	0.450	D400	E437409.348 N410306.870
SWDC9	150Ø - 45.540	47.139	1.599	PPIC	0.450	D400	E437465.464 N410412.360
SWDC10	150Ø - 45.600	46.856	1.256	PPIC	0.450	D400	E437475.566 N410405.461
SWDC11	150Ø - 45.950	46.846	0.896	PPIC	0.450	D400	E437466.961 N410400.753
SWDC12	150Ø - 45.200	46.286	1.086	PPIC	0.450	D400	E437481.106 N410360.430
SWDC13	150Ø - 45.100	46.112	1.012	PPIC	0.450	D400	E437482.163 N410350.059
SWDC14	150Ø - 45.400	46.213	0.813	PPIC	0.450	D400	E437457.712 N410356.950
SWDC15	150Ø - 45.000	46.184	1.184	PPIC	0.450	D400	E437446.640 N410348.333
SWDC16	150Ø - 44.750	45.779	1.029	PPIC	0.450	D400	E437448.894 N410322.470
SWDC17	150Ø - 44.350	45.517	1.167	PPIC	0.450	D400	E437489.564 N410306.003
SWDC18	150Ø - 44.550	45.443	0.893	PPIC	0.450	D400	E437464.194 N410306.387
SWDC19	150Ø - 44.500	45.511	1.011	PPIC	0.450	D400	E437453.125 N410297.167
SWDC20	150Ø - 44.150	45.430	1.280	PPIC	0.450	D400	E437425.596 N410244.706
SWDC21	150Ø - 44.450	45.251	0.801	PPIC	0.450	D400	E437457.594 N410262.302
SWDC22	150Ø - 43.650	44.912	1.262	PPIC 600	0.600	D400	E437472.617 N410256.475
SWDC23	150Ø - 43.650	44.717	1.067	PPIC	0.450	D400	E437443.283 N410214.041
SWDC24	150Ø - 43.600	44.398	0.798	PPIC	0.450	D400	E437465.416 N410220.528
SWDC25	225Ø - 42.750	44.495	1.745	PPIC 600	0.600	D400	E437475.832 N410231.928
SWDC26	225Ø - 46.100	47.230	1.130	PPIC 600	0.600	D400	E437321.854 N410440.768
SWDC27	150Ø - 45.650	47.238	1.588	PPIC	0.450	D400	E437306.466 N410435.216
SWDC28	150Ø - 45.750	46.656	0.906	PPIC	0.450	D400	E437338.527 N410394.384
SWDC29	150Ø - 45.800	46.794	0.994	PPIC	0.450	D400	E437326.242 N410389.982
SWDC30	150Ø - 44.900	46.993	2.093	PPIC	0.450	D400	E437264.231 N410356.828
SWDC31	150Ø - 45.500	46.587	1.087	PPIC	0.450	D400	E437240.031 N410413.238
SWDC32	150Ø - 45.800	47.172	1.372	PPIC	0.450	D400	E437248.463 N410342.128
SWDC33	150Ø - 45.950	47.169	1.219	PPIC	0.450	D400	E437266.443 N410326.599
SWDC34	150Ø - 46.200	47.488	1.288	PPIC	0.450	D400	E437276.845 N410310.268
SWDC35	150Ø - 45.100	46.497	1.397	PPIC	0.450	D400	E437359.310 N410278.729
SWDC36	150Ø - 45.600	46.803	1.203	PPIC	0.450	D400	E437347.569 N410265.939
SWDC37	150Ø - 45.250	46.187	0.937	PPIC	0.450	D400	E437384.481 N410248.560
SWDC38	150Ø - 44.900	45.937	1.037	PPIC	0.450	D400	E437395.803 N410221.799
SWDC39	150Ø - 45.050	46.324	1.274	PPIC	0.450	D400	E437378.391 N410218.760
SWDC40	150Ø - 44.650	45.893	1.243	PPIC	0.450	D400	E437393.750 N410176.877
SWDC41	150Ø - 43.200	44.208	1.008	PPIC	0.450	D400	E437469.924 N410192.790

SW25 HYDROBRAKE DETAILS

REFERENCE: CTL-SHE-0218-2500-1100-2500
DESIGN HEAD: 1.100m
ORIFICE SIZE: 113mm
DESIGN FLOW: 25.00l/s
INVERT LEVEL: 44.400m

TECHNICAL SPECIFICATION		
CONTROL POINT	HEAD (m)	FLOW (l/s)
PRIMARY DESIGN	1.100	25.000
FLUSH - FLO	0.373	24.989
KICK - FLO	0.790	21.350
MEAN FLOW		21.034

REFER TO DRAWING D703 FOR

SW25 FLOW CONTROL DETAILS

NOTES:
1. FLOW CONTROL DETAIL REFERS TO HYDRO INTERNATIONAL HYDRO BRAKE OPTIMUM SPECIFICATION

NOTES:
1. MANHOLE TYPE B1 TO HAVE DOUBLE COVER.
2. REFER TO DRAINAGE CONSTRUCTION DETAILS D701 FOR FURTHER INFORMATION REGARDING MANHOLE TYPES.
3. FOR FULL FIXING INFORMATION REFER TO MANUFACTURERS INSTALLATION GUIDELINES.

NOTES:
1. REFER TO DRAINAGE CONSTRUCTION DETAILS D701 FOR FURTHER INFORMATION REGARDING MANHOLE/INSPECTION TYPES.
2. FOR FULL FIXING INFORMATION REFER TO MANUFACTURERS INSTALLATION GUIDELINES.
3. COVER TYPES;
- A15 – PEDESTRIAN AND CYCLIST USE ONLY
- B125 – PRIVATE DRIVEWAYS
- C250 – SHARED DRIVEWAYS
- D400 – ADOPTABLE ROADS

FOUL WATER MANHOLE SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COORDINATES
FW1	150Ø - 45.300 150Ø - 45.300	47.211	1.911	B	1.200	D400 (600x600)	E437438.966 N410434.043
FW2	150Ø - 44.900 150Ø - 44.900 150Ø - 44.900 150Ø - 44.900	46.877	1.977	B	1.500	D400 (600x600)	E437443.733 N410399.830
FW3	150Ø - 44.000 150Ø - 44.000 150Ø - 44.000 150Ø - 44.000	45.978	1.978	B	1.350	D400 (600x600)	E437450.982 N410351.002
FW4	150Ø - 45.100 150Ø - 45.100 150Ø - 45.100	47.140	2.040	B	1.200	D400 (600x600)	E437314.718 N410436.812
FW5	150Ø - 44.600 150Ø - 44.600 150Ø - 44.600	46.491	1.891	B	1.200	D400 (600x600)	E437333.066 N410385.902
FW6	150Ø - 44.950 150Ø - 44.950	46.857	1.907	B	1.200	D400 (600x600)	E437270.272 N410354.313
FW7	150Ø - 44.400 150Ø - 44.400 150Ø - 44.400 150Ø - 44.400	46.660	2.260	B	1.350	D400 (600x600)	E437314.959 N410377.258
FW8	150Ø - 44.250 150Ø - 44.250	46.605	2.355	B	1.200	D400 (600x600)	E437321.477 N410366.308
FW9	150Ø - 43.600 150Ø - 44.650 150Ø - 44.650 150Ø - 43.600	46.237	2.637	B	1.350	D400 (600x600)	E437377.098 N410334.629
FW10	150Ø - 43.150 150Ø - 44.400 150Ø - 43.150	45.852	2.702	B	1.200	D400 (600x600)	E437413.668 N410309.850
FW11	150Ø - 42.700 150Ø - 42.700 150Ø - 44.350 150Ø - 42.700	45.576	2.876	B	1.350	D400 (600x600)	E437455.932 N410317.602
FW12	150Ø - 42.550 150Ø - 43.900 150Ø - 43.950 150Ø - 42.500	45.280	2.780	B	1.350	D400 (600x600)	E437459.254 N410298.984
FW13	150Ø - 44.700 150Ø - 44.700 150Ø - 44.700	46.798	2.098	B	1.200	D400 (600x600)	E437320.231 N410297.337
FW14	150Ø - 44.250 150Ø - 44.250 150Ø - 45.400 150Ø - 44.250	46.384	2.134	B	1.350	D400 (600x600)	E437356.267 N410275.055
FW15	150Ø - 43.100 150Ø - 43.100	46.024	2.924	B	1.350	D400 (600x600)	E437380.966 N410243.484
FW16	150Ø - 42.650 150Ø - 43.850 150Ø - 42.650	45.362	2.712	B	1.200	D400 (600x600)	E437423.144 N410250.992
FW17	150Ø - 42.075 150Ø - 42.075 150Ø - 42.075 150Ø - 43.400 225Ø - 42.000	44.855	2.855	B	1.500	D400 (600x600)	E437466.555 N410258.387
FW18	150Ø - 43.500 150Ø - 43.500 150Ø - 43.500	45.933	2.433	B	1.200	D400 (600x600)	E437362.929 N410204.968
FW19	150Ø - 43.000 150Ø - 44.450 150Ø - 43.000	46.018	3.018	B	1.350	D400 (600x600)	E437385.628 N410213.595
FW20	150Ø - 42.800 150Ø - 44.200 150Ø - 42.800	45.796	2.996	B	1.200	D400 (600x600)	E437401.627 N410211.382
FW21	150Ø - 42.000 150Ø - 43.050 150Ø - 42.000	43.982	1.982	B	1.200	D400 (600x600)	E437472.539 N410223.700
FW22	225Ø - 41.750 150Ø - 41.825 225Ø - 41.750	44.179	2.429	B	1.350	D400 (600x600)	E437472.089 N410226.442

SW7 HYDROBRAKE DETAILS

REFERENCE: CTL-SHE-0232-2900-1100-2900
DESIGN HEAD: 1.100m
ORIFICE SIZE: 82mm
DESIGN FLOW: 29.00l/s
INVERT LEVEL: 44.400m

TECHNICAL SPECIFICATION		
CONTROL POINT	HEAD (m)	FLOW (l/s)
PRIMARY DESIGN	1.100	29.000
FLUSH - FLO	0.388	28.995
KICK - FLO	0.803	24.940
MEAN FLOW		24.270

REFER TO DRAWING D705 FOR

SW7 FLOW CONTROL DETAILS

SW34 HYDROBRAKE DETAILS

REFERENCE: CTL-SHE-0379-9280-1250-9280
DESIGN HEAD: 1.250m
ORIFICE SIZE: 82mm
DESIGN FLOW: 92.8 l/s
INVERT LEVEL: 41.850m

TECHNICAL SPECIFICATION		
CONTROL POINT	HEAD (m)	FLOW (l/s)
PRIMARY DESIGN	1.250	92.800
FLUSH - FLO	0.569	92.511
KICK - FLO	0.984	82.592
MEAN FLOW		74.122

REFER TO DRAWING D704 FOR

SW34 FLOW CONTROL DETAILS

FOUL WATER DEMARCATION CHAMBER SCHEDULE

MH REFERENCE	INVERT LEVELS	COVER LEVELS	DEPTH TO INVERT	TYPE	SIZE	COVER TYPE	COORDINATES
FWDC1	150Ø - 45.750	47.321	1.571	PPIC	0.450	D400	E437445.747 N410435.531
FWDC2	150Ø - 45.200	47.103	1.903	PPIC	0.450	D400	E437452.011 N410412.048
FWDC3	150Ø - 45.200	47.082	1.882	PPIC	0.450	D400	E437438.652 N410399.612
FWDC4	150Ø - 44.850	46.298	1.448	PPIC	0.450	D400	E437456.923 N410358.493
FWDC5	150Ø - 44.400	46.224	1.824	PPIC	0.450	D400	E437446.553 N410350.399
FWDC6	150Ø - 45.500	47.216	1.716	PPIC	0.450	D400	E437321.459 N410439.863
FWDC7	150Ø - 45.350	47.175	1.825	PPIC	0.450	D400	E437307.919 N410434.199
FWDC8	150Ø - 44.900	46.645	1.745	PPIC	0.450	D400	E437339.713 N410393.609
FWDC9	150Ø - 45.250	46.980	1.730	PPIC	0.450	D400	E437263.448 N410356.525
FWDC10	150Ø - 44.850	46.827	1.977	PPIC	0.450	D400	E437313.108 N410381.156
FWDC11	150Ø - 44.850	46.373	1.523	PPIC	0.450	D400	E437379.733 N410340.164
FWDC12	150Ø - 44.700	46.471	1.771	PPIC	0.450	D400	E437374.028 N410331.167
FWDC13	150Ø - 44.550	46.041	1.491	PPIC	0.450	D400	E437410.518 N410306.554
FWDC14	150Ø - 44.450	45.833	1.383	PPIC	0.450	D400	E437447.297 N410322.600
FWDC15	150Ø - 44.050	45.448	1.398	PPIC	0.450	D400	E437464.863 N410305.389
FWDC16	150Ø - 44.100	45.562	1.462	PPIC	0.450	D400	E437452.118 N410298.302
FWDC17	150Ø - 45.050	46.859	1.809	PPIC	0.450	D400	E437322.945 N410303.790
FWDC18	150Ø - 44.950	47.195	2.245	PPIC	0.450	D400	E437312.801 N410287.162
FWDC19	150Ø - 44.650	46.506	1.856	PPIC	0.450	D400	E437358.492 N410279.329
FWDC20	150Ø - 45.900	46.801	0.901	PPIC	0.450	D400	E437346.566 N410266.116
FWDC21	150Ø - 44.550	45.458	0.908	PPIC	0.450	D400	E437424.409 N410243.771
FWDC22	150Ø - 43.900	45.244	1.344	PPIC	0.450	D400	E437468.265 N410263.702
FWDC23	150Ø - 42.700	44.912	2.212	PPIC	0.450	D400	E437472.711 N410259.392
FWDC24	150Ø - 44.100	46.000	1.900	PPIC	0.450	D400	E437358.977 N410199.913
FWDC25	150Ø - 44.700	46.338	1.638	PPIC	0.450	D400	E437378.412 N410217.785
FWDC26	150Ø - 44.450	45.851	1.401	PPIC	0.450	D400	E437399.565 N410213.878
FWDC27	150Ø - 43.350	44.525	1.175	PPIC	0.450	D400	E437464.591 N410221.762

DESIGN RISK NOTES:

1. IN ACCORDANCE WITH THE CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015, IT IS THE POLICY OF THIS PRACTICE TO "DESIGN OUT AS MANY IDENTIFIABLE RISKS AS POSSIBLE FOR THE CONSTRUCTION, OPERATION AND MAINTENANCE OF THE PROJECT.
2. ALL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH THE PRE CONSTRUCTION INFORMATION WHICH IS DEFINED IN THE CONSTRUCTION (DESIGN & MANAGEMENT) REGULATIONS 2015.
3. A COMPETENT CONTRACTOR SHOULD BE AWARE OF "NORMAL" RISKS INVOLVED WITH THE CONSTRUCTION PROCESS. HOWEVER ADDITIONAL PRECAUTIONS WILL NEED TO BE CONSIDERED FOR THE FOLLOWING ITEMS:
   a) NONE IDENTIFIED
4. SAFE METHODS AND SYSTEMS OF WORK REMAIN THE RESPONSIBILITY OF THE CONTRACTOR AND MUST BE IDENTIFIED IN THE CONSTRUCTION PHASE PLAN. THE CONSTRUCTION PHASE PLAN MUST BE IN PLACE BEFORE THE START OF ANY MOBILIZATION OR SITE WORKS.
5. RESIDUAL RISKS THAT HAVE BEEN IDENTIFIED AND CANNOT BE DESIGNED OUT ARE AS FOLLOWS:
   a) NONE IDENTIFIED.
6. IF ANY PARTY USING THIS DRAWING CONSIDERS THAT THERE ARE "ABNORMAL" RISKS THAT HAVE NOT BEEN IDENTIFIED ABOVE, THEN THE ENGINEER SHOULD BE NOTIFIED.

ADDITIONAL HEALTH & SAFETY NOTES:

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 VACCINATIONS, SKILLS DISEASES 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(FIL)

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 NOTES:

1. ALL ADOPTABLE DRAINAGE WORKS AND MATERIALS TO BE IN ACCORDANCE WITH "CODE FOR ACCEPTION", THE RELEVANT BRITISH/EUROPEAN AND WATER AUTHORITIES 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 EARRIED OUT.
4. YORKSHIRE WATER IS NOT OBLIGED TO ACCEPT FILTER DRAIN/LAND DRAINAGE RUN-OFF INTO THEIR PUBLIC SEWER NETWORK OF DISPOSAL. THE LAND DRAINAGE ACT 1991 (LDA91) IS NOT IN DIRECT LIN WITH PLANNING GUIDANCE ON DISPOSAL OF THE LAND DRAINAGE RUN-OFF WILL THEREFORE BE REQUIRES AND YOU WILL HAVE TO LIAISE WITH THE LOCAL AUTHORITY, LAND DRAINAGE SECTION REGARDING THE DISPOSAL OF THE FILTER DRAIN/LAND DRAINAGE RUN-OFF.
5. THE ADOPTABLE SEWERS SHOULD BE A MINIMUM OF 1M AND MANHOLES 0.5M FROM KERB FACES AND SERVICE MARGINS.
6. SEWERS MUST HAVE 5 METRES CLEARANCE FROM TREES AND HEDGES OR THE WIDTH OF THE CANOPY AT MATURE HEIGHT.
7. 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 NONVEHICULAR ACCESS AREAS) THEN A CONCRETE SURROUND SHOULD BE PROVIDED ABOVE GRANULAR BED AND SURROUND.
8. BEDDING AND BACKFILL MATERIAL TO CONFORM TO THE REQUIREMENT OF WATER INDUSTRY SPECIFICATION 4-08-02 (TABLE A2).
9. YORKSHIRE WATER POLICY IS THAT TYPE "C" BRICK MANHOLES AND 1050MM DIAMETER MANHOLE RINGS ARE NOT PREFERRED. INSTEAD, IT IS PREFERRED THAT YOU USE A TYPE "B" MANHOLE WITH 1200MM DIAMETER OR 1500MM DIAMETER RINGS, DEPENDING ON THE OPENING SIZED OVER THE CHAMBER. THE MINIMUM CRUSHING STRENGTH FOR CLAY PIPES SHOULD BE
10. ADOPTABLE PLASTIC SEWER PIPES TO BE BSI KITEMARKED (CERTIFIED TO WIS 4-35-01 AND BS/EN/ITALI. 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 REQUIRE CLAY WARE CHANNEL IN MANHOLES.
11. 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/BS1917-1 2002). PLASTIC PIPES SHOULD CONFORM TO WIS 4-35-01 AND BS EN1401.
12. 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.
13. THERE MUST BE ENOUGH CLEARANCE AT CROSSOVERS TO ACCOMMODATE BEDDING TO BOTH PIPES, APPROX. 200MM IF CROSSOVER IS NEAR THE ROCKER THEN THE CLEARANCE NEEDED MAY NEED TO BE INCREASED".

PIPE MATERIALS

- **150-600Ø UPVC PIPES TO BE BSI KITEMARKED AND CERTIFIED TO WIS 4-35-01 & BS/EN1401.**
- **700Ø CONCRETE PIPES TO BE BSI KITEMARKED, CLASS 120 CONCRETE & CERTIFIED TO BS5911 & 1916.**

DESIGN NOTES:

1. ALL WORKS TO COMPLY WITH CURRENT VERSION OF THE FOLLOWING DOCUMENTS:
   - DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB)
   - SPECIFICATION FOR HIGHWAY WORKS (SHW)
   - LOCAL AUTHORITY DESIGN GUIDE AND SPECIFICATION
2. PRIOR TO COMMENC