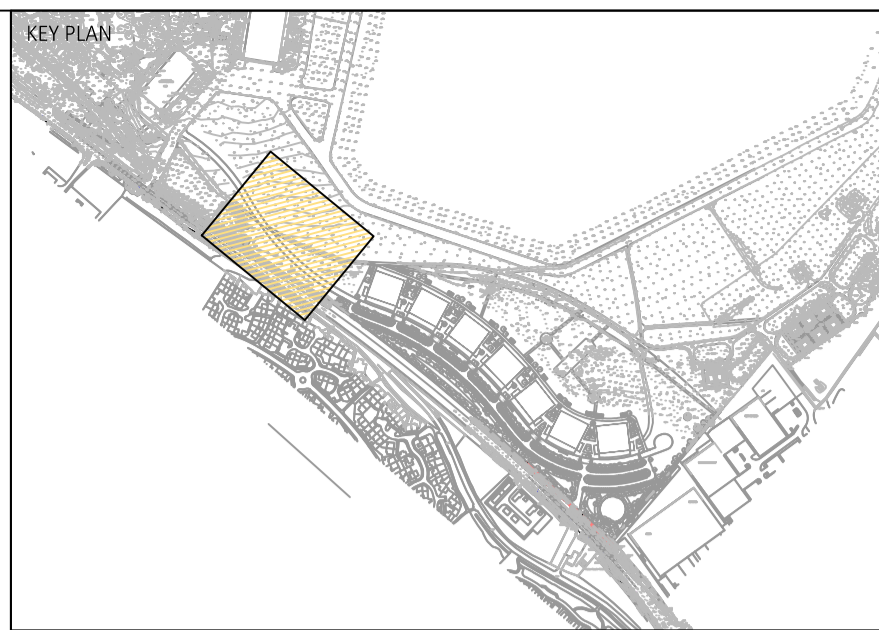


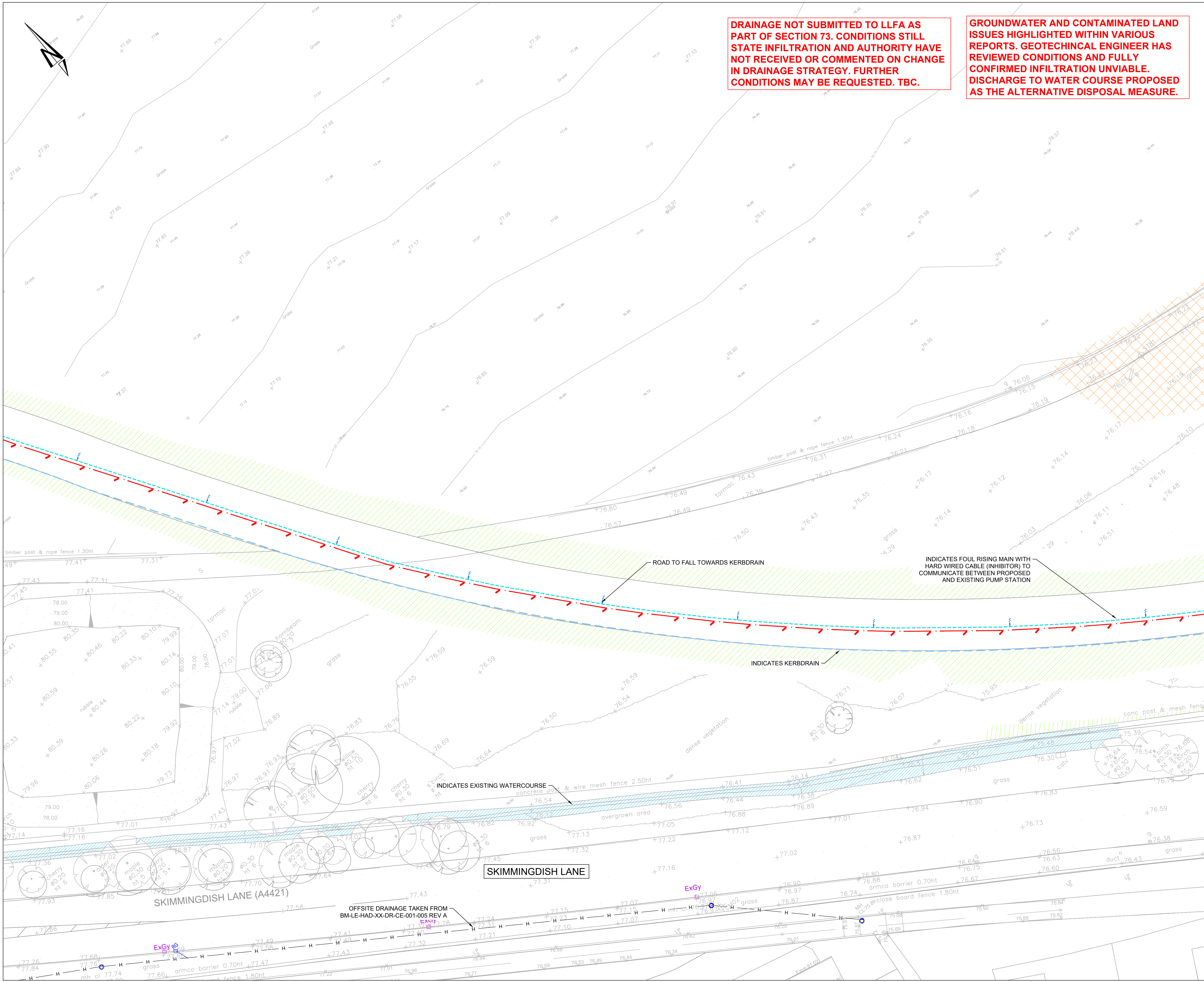
DRAINAGE NOT SUBMITTED TO LLFA AS PART OF SECTION 73. CONDITIONS STILL STATE INFILTRATION AND AUTHORITY HAVE NOT RECEIVED OR COMMENTED ON CHANGE IN DRAINAGE STRATEGY. FURTHER CONDITIONS MAY BE REQUESTED. TBC.

GROUNDWATER AND CONTAMINATED LAND ISSUES HIGHLIGHTED WITHIN VARIOUS REPORTS. GEOTECHNICAL ENGINEER HAS REVIEWED CONDITIONS AND FULLY CONFIRMED INFILTRATION UNVIABLE. DISCHARGE TO WATER COURSE PROPOSED AS THE ALTERNATIVE DISPOSAL MEASURE.



NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and does not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- Levels shown in metres above Ordnance Datum (mAOD).
- All private drainage to comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant British Standards and Codes of Practices.
- All external drainage within trafficked areas with less than 1.2m cover to have type Z concrete bed and surround. All external drainage within landscaped areas with cover less than 0.6m to have type Z concrete bed and surround. All drainage with greater cover than the minimum required to have type S bed and surround.
- All drainage to be laid soffit to soffit unless otherwise shown.
- The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.
- All foul drainage to be minimum 100mm diameter, all surface water drainage to be minimum 150mm diameter unless otherwise shown.
- Cover levels shown on this drawing refer to approximate surface levels. It is the contractors responsibility to ensure that access covers and frames are set at the final surface levels.
- Where possible the contractor is to orientate manhole biscuits and covers to locate them parallel to kerbs and paving.
- The Contractor should comply with hs(g) 47 "Avoiding Danger from Underground Services" when excavating around existing services.
- It is the contractors responsibility to determine the location and depth of all existing services, mains and cables prior to construction.
- Contractor to provide temporary screens in each of the down stream manholes during the construction period of the development in accordance with SFA 2.9.10 and the local sewerage undertakers requirements.
- All in-situ concrete and precast concrete components to be manufactured using Sulphate Resisting Portland Cement, (SRPC) to BS 4027, if required, subject to soil conditions. Manhole components to be to BS EN 1917:2002.
- All ironwork to be kite marked by BSI or certified by equal inspection authority.
- All redundant connections to be capped off and grouted from the down stream manhole.
- All new drainage pipes to be jetted, CCTV surveyed with DVD recording and any defects highlighted to the supervising officer. Following the rectification of any defects, the drain is to be re-surveyed with CCTV and the recordings made available to the project manager/engineer.
- Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing.
- Prior to commencing the works the contractor is to undertake the drainage investigation work as noted on the drawing.



PO1	SUITABLE FOR STAGE 3	J.MAGEE	03/11/23	J.MAGEE	03/11/23		
REV	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

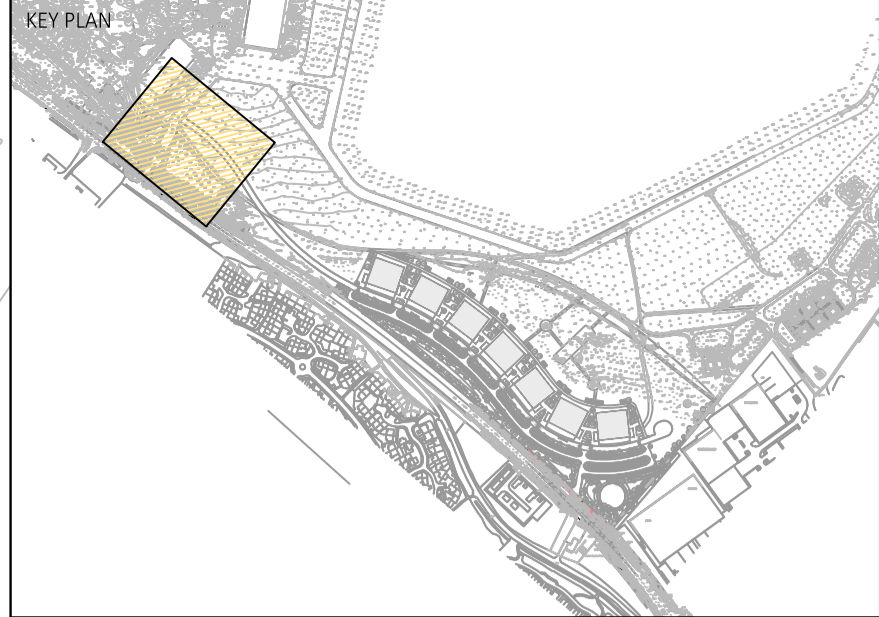
PROJECT
BICESTER MOTION

TITLE
DRAINAGE LAYOUT SHEET 5

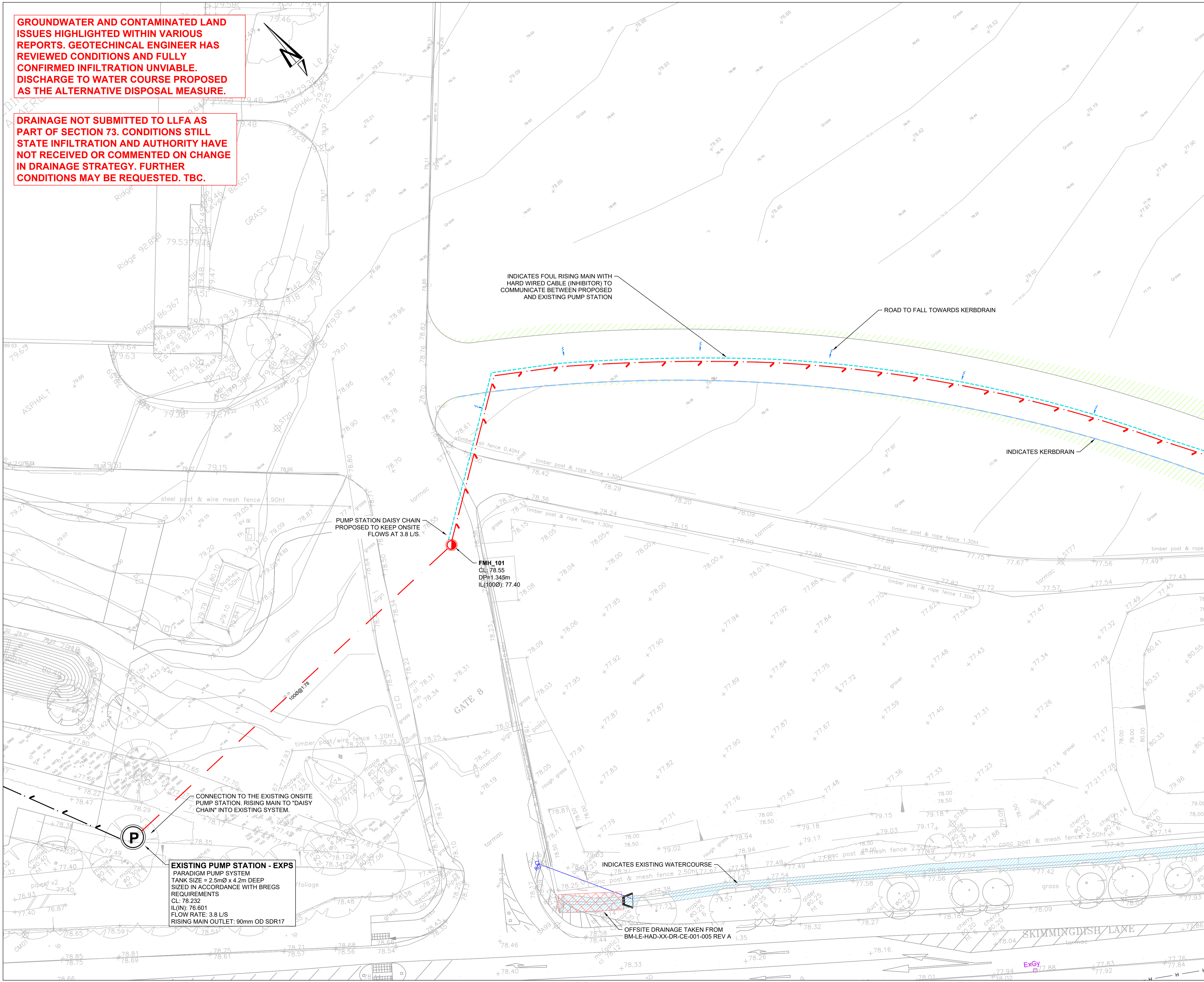
HYDROCK PROJECT NO. C-27280	SCALE @ A1 1:250
STATUS DESCRIPTION SUITABLE FOR STAGE 3	STATUS S2
DRAWING NO. (PROJECT CODE ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7015	REVISION PO1

GROUNDWATER AND CONTAMINATED LAND ISSUES HIGHLIGHTED WITHIN VARIOUS REPORTS. GEOTECHNICAL ENGINEER HAS REVIEWED CONDITIONS AND FULLY CONFIRMED INFILTRATION UNVAILABLE. DISCHARGE TO WATER COURSE PROPOSED AS THE ALTERNATIVE DISPOSAL MEASURE.

DRAINAGE NOT SUBMITTED TO LLFA AS PART OF SECTION 73. CONDITIONS STILL STATE INFILTRATION AND AUTHORITY HAVE NOT RECEIVED OR COMMENTED ON CHANGE IN DRAINAGE STRATEGY. FURTHER CONDITIONS MAY BE REQUESTED. TBC.



- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
 - Levels shown in metres above Ordnance Datum (mAOD).
 - All private drainage to comply with current Building Regulations, BS EN-752 Drain and Sewer systems outside Buildings and other relevant British Standards and Codes of Practices.
 - All external drainage within trafficked areas with less than 1.2m cover to have type Z concrete bed and surround. All external drainage within landscaped areas with cover less than 0.6m to have type Z concrete bed and surround. All drainage with greater cover than the minimum required to have type S bed and surround.
 - All drainage to be laid soffit to soffit unless otherwise shown.
 - The Contractor is to verify the line, level and diameter of existing sewers before commencing drainage works.
 - All foul drainage to be minimum 100mm diameter, all surface water drainage to be minimum 150mm diameter unless otherwise shown.
 - Cover levels shown on this drawing refer to approximate surface levels. It is the contractors responsibility to ensure that access covers and frames are set at the final surface levels.
 - Where possible the contractor is to orientate manhole biscuits and covers to locate them parallel to kerbs and paving.
 - The Contractor should comply with hs(g) 47 "Avoiding Danger from Underground Services" when excavating around existing services.
 - It is the contractors responsibility to determine the location and depth of all existing services, mains and cables prior to construction.
 - Contractor to provide temporary screens in each of the down stream manholes during the construction period of the development in accordance with SFA 2.9.10 and the local sewerage undertakers requirements.
 - All in-situ concrete and precast concrete components to be manufactured using Sulphate Resisting Portland Cement, (SRPC) to BS 4027, if required, subject to soil conditions. Manhole components to be to BS EN 1917:2002.
 - All ironwork to be kite marked by BSI or certified by equal inspection authority.
 - All redundant connections to be capped off and grouted from the down stream manhole.
 - All new drainage pipes to be jetted, CCTV surveyed with DVD recording and any defects highlighted to the supervising officer. Following the rectification of any defects, the drain is to be re-surveyed with CCTV and the recordings made available to the project manager/engineer.
 - Prior to commencing the works the contractor is to confirm details of the existing drainage system as noted on the drawing.
 - Prior to commencing the works the contractor is to undertake the drainage investigation work as noted on the drawing.



POI	SUITABLE FOR STAGE 3			
	J.MAGEE	03/11/23	J.MAGEE	03/11/23
REV	REVISION NOTES/COMMENTS			
	DRAWN BY	DATE	CHECKED BY	DATE

Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
DRAINAGE LAYOUT SHEET 6

HYDROCK PROJECT NO.	SCALE @ A1
C-27280	1:250
STATUS DESCRIPTION	STATUS
SUITABLE FOR STAGE 3	S2
DRAWING NO. (PROJECT CODE-ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER)	REVISION
27280-HYD-00-ZZ-DR-C-7016	PO1

CHAMBER SCHEDULE: Foul Network									
CHAMBER REF:	TYPE	COVER LEVEL	CONNECTED PIPES	DEPTH	COVER	GRADE	EASTING	NORTHING	
FMH_016	0.45MØ SSG - Type C - PPIC	76.372	100Ø(Out) IL:75.500 100Ø(In) IL:75.500 100Ø(In) IL:75.500	0.872	B125	450x450	459530.471	224015.895	
FMH_001	1.20MØ SSG - Type B - MH	76.255	150Ø(Out) IL:73.301 100Ø(In) IL:75.300	2.954	D400	600x600	459527.773	224008.849	
FMH_019	0.45MØ SSG - Type C - PPIC	75.869	100Ø(Out) IL:75.000 100Ø(In) IL:75.000 100Ø(In) IL:75.000	0.869	B125	450x450	459583.770	223990.761	
FMH_002	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	75.890	150Ø(In) IL:72.939 150Ø(Out) IL:72.939	2.951	D400	900x900	459554.366	223997.448	
FMH_003	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	75.658	150Ø(In) IL:72.578 150Ø(Out) IL:72.578 100Ø(In) IL:74.800	3.080	D400	900x900	459580.080	223984.249	
FMH_022	0.45MØ SSG - Type C - PPIC	75.398	100Ø(Out) IL:74.500 100Ø(In) IL:74.500 100Ø(In) IL:74.500	0.898	B125	450x450	459633.289	223957.457	
FMH_004	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	75.419	150Ø(In) IL:72.285 150Ø(Out) IL:72.285	3.133	D400	900x900	459604.906	223968.737	
FMH_005	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	75.186	150Ø(In) IL:71.993 150Ø(Out) IL:71.993 100Ø(In) IL:74.300	3.193	D400	900x900	459628.612	223951.568	
FMH_025	0.45MØ SSG - Type C - PPIC	74.895	100Ø(Out) IL:74.000 100Ø(In) IL:74.000 100Ø(In) IL:74.000	0.895	B125	450x450	459676.981	223916.830	
FMH_006	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	74.946	150Ø(In) IL:71.700 150Ø(Out) IL:71.700	3.246	D400	900x900	459650.712	223932.386	
FMH_007	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	74.712	150Ø(In) IL:71.407 150Ø(Out) IL:71.407 100Ø(In) IL:73.800	3.305	D400	900x900	459671.450	223911.739	
FMH_028	0.45MØ SSG - Type C - PPIC	74.401	100Ø(Out) IL:73.500 100Ø(In) IL:73.500 100Ø(In) IL:73.500	0.901	B125	450x450	459713.628	223870.281	
FMH_008	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	74.474	150Ø(In) IL:71.115 150Ø(Out) IL:71.115	3.359	D400	900x900	459690.348	223889.404	
FMH_009	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	74.237	150Ø(In) IL:70.822 150Ø(Out) IL:70.822 100Ø(In) IL:73.300	3.416	D400	900x900	459707.702	223865.797	
FMH_034	0.45MØ SSG - Type C - PPIC	73.861	100Ø(Out) IL:73.000 100Ø(In) IL:73.000 100Ø(In) IL:73.000	0.861	B125	450x450	459840.376	223818.591	
FMH_031	0.45MØ SSG - Type C - PPIC	73.865	100Ø(Out) IL:73.000 100Ø(In) IL:73.000 100Ø(In) IL:73.000	0.865	B125	450x450	459770.143	223827.051	
FMH_010	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	73.910	150Ø(In) IL:70.436 150Ø(Out) IL:70.436	3.474	D400	900x900	459734.324	223837.955	
FMH_014	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	73.612	150Ø(Out) IL:70.463 100Ø(In) IL:72.800	3.149	D400	900x900	459841.466	223811.241	
FMH_011	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	73.635	150Ø(In) IL:70.062 150Ø(Out) IL:70.062 100Ø(In) IL:72.800	3.574	D400	900x900	459767.316	223820.168	
FMH_012	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	73.439	150Ø(In) IL:69.816 150Ø(Out) IL:69.816 150Ø(In) IL:69.816	3.623	D400	900x900	459786.062	223811.366	
FMH_101	1.20MØ SSG - Type B - MH	78.550	100Ø(Out) IL:77.400	1.345	D400	600x600	459249.072	224222.183	
FMH_102	1.20MØ SSG - Type B - MH	0.655	100Ø(In) IL:76.601	0.900	D400	600x600	459187.251	224218.553	
FMH_013	1.80MØ SFA7 - Type1A - 1200 access (for ladder) (B.8)	73.316	150Ø(In) IL:69.729	3.587	D400	900x900	459785.264	223807.586	

KEY PLAN

NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- All levels are shown in metres above Ordnance Datum (m AOD).

PO1 SUITABLE FOR STAGE 3

J.MAGEE	03/11/23	J.MAGEE	03/11/23		
---------	----------	---------	----------	--	--

REVISION NOTES/COMMENTS					
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE



CLIENT

BICESTER MOTION LIMITED

PROJECT

BICESTER MOTION

TITLE

MANHOLE SCHEDULE - FOUL

HYDROCK PROJECT NO.

C-27280 SCALE @ A1 NTS

STATUS DESCRIPTION

SUITABLE FOR STAGE 3 STATUS S3

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)


27280-HYD-00-ZZ-DR-C-7050 REVISION PO1

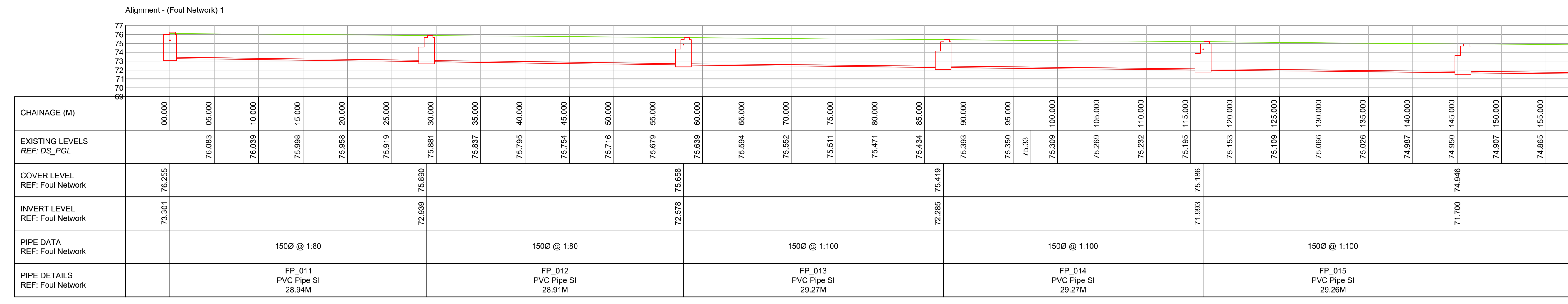
CHAMBER SCHEDULE: Surface Network								
CHAMBER REF:	TYPE	COVER LEVEL	CONNECTED PIPES	DEPTH	COVER	GRADE	EASTING	NORTHING
SMH_015	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.455	300Ø(In) IL:74.473 300Ø(Out) IL:74.473	1.982	D400	600x600	459517.443	224065.069
SMH_014	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.426	300Ø(Out) IL:74.950	1.476	D400	600x600	459553.296	224052.480
SMH_018	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.365	300Ø(In) IL:73.707 300Ø(Out) IL:73.901 300Ø(In) IL:73.901	2.658	D400	600x600	459497.524	224028.540
SMH_019	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.423	300Ø(Out) IL:74.930	1.493	D400	600x600	459540.017	224014.556
SMH_021	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.951	300Ø(In) IL:74.172 300Ø(Out) IL:74.172	1.779	D400	600x600	459578.811	224041.395
SMH_020	0.60MØ SFA7 - Type3 - Circ Flex (Drive) (B.17a)	75.938	300Ø(Out) IL:74.430	1.508	B125	450x450	459612.172	224023.203
SMH_001	1.50MØ SFA7 - Type2 - Manhole (B.12)	75.708	300Ø(In) IL:73.586 600Ø(Out) IL:73.586	2.122	D400	600x600	459486.027	224004.311
SMH_025	0.60MØ SFA7 - Type3 - Circ Flex (Drive) (B.17a)	75.895	300Ø(Out) IL:74.450	1.445	B125	450x450	459592.184	223987.553
SMH_024	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.115	300Ø(In) IL:73.899 300Ø(Out) IL:73.858 300Ø(In) IL:73.899	2.258	D400	600x600	459554.208	224007.730
SMH_027	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.455	300Ø(In) IL:73.776 300Ø(Out) IL:73.776	1.680	D400	600x600	459636.238	224008.228
SMH_030	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.689	300Ø(In) IL:73.603 300Ø(Out) IL:73.569 300Ø(In) IL:73.603	2.121	D400	600x600	459605.573	223980.365
SMH_026	0.60MØ SFA7 - Type3 - Circ Flex (Drive) (B.17a)	75.441	300Ø(Out) IL:73.940	1.501	B125	450x450	459666.390	223985.104
SMH_003	1.50MØ SFA7 - Type2 - Manhole (B.12)	75.558	600Ø(In) IL:73.501 600Ø(Out) IL:73.501	2.057	D400	600x600	459502.449	223991.717
SMH_031	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.427	300Ø(Out) IL:73.940	1.487	D400	600x600	459641.946	223953.213
SMH_004	1.50MØ SFA7 - Type2 - Manhole (B.12)	75.051	300Ø(In) IL:73.638 600Ø(Out) IL:73.338 600Ø(In) IL:73.338	1.713	D400	600x600	459540.466	223977.422
SMH_033	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.982	300Ø(In) IL:73.507 300Ø(Out) IL:73.507	1.475	D400	600x600	459687.774	223966.523
SMH_036	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.173	300Ø(In) IL:73.335 300Ø(Out) IL:73.328 300Ø(In) IL:73.355	1.845	D400	600x600	459653.587	223943.244
SMH_005	1.50MØ SFA7 - Type2 - Manhole (B.12)	74.763	300Ø(In) IL:73.428 600Ø(Out) IL:73.128 600Ø(In) IL:73.128	1.966	D400	600x600	459586.293	223951.750
SMH_032	0.60MØ SFA7 - Type3 - Circ Flex (Drive) (B.17a)	74.944	300Ø(Out) IL:73.650	1.294	B125	450x450	459713.968	223938.996
SMH_037	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.920	300Ø(Out) IL:73.550	1.370	D400	600x600	459684.868	223911.288
SMH_006	1.50MØ SFA7 - Type2 - Manhole (B.12)	74.502	600Ø(In) IL:72.907 600Ø(Out) IL:72.907 300Ø(In) IL:73.207	1.667	D400	600x600	459630.518	223918.661
SMH_042	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.660	300Ø(In) IL:73.119 300Ø(Out) IL:73.095 300Ø(In) IL:73.119	1.564	D400	600x600	459694.156	223899.503
SMH_039	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.476	300Ø(In) IL:73.253 300Ø(Out) IL:73.253	1.223	D400	600x600	459730.762	223919.063
SMH_038	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.446	300Ø(Out) IL:73.379	1.066	D400	600x600	459753.992	223888.992
SMH_043	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.419	300Ø(Out) IL:73.250	1.169	D400	600x600	459722.155	223864.618
SMH_007	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.904	600Ø(In) IL:72.687 600Ø(Out) IL:72.687 300Ø(In) IL:72.987	1.217	D400	600x600	459668.010	223878.221
SMH_045	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.263	300Ø(In) IL:72.985 300Ø(Out) IL:72.985	1.278	D400	600x600	459762.702	223879.005
SMH_044	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.185	300Ø(Out) IL:73.111	1.074	D400	600x600	459796.111	223861.485
SMH_110	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.990	300Ø(Out) IL:72.846	1.144	D400	600x600	459810.167	223857.829
SMH_101	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.937	300Ø(In) IL:72.705 300Ø(Out) IL:72.705	1.232	D400	600x600	459852.099	223862.010
SMH_049	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.140	300Ø(Out) IL:73.000	1.140	D400	600x600	459777.789	223825.989
SMH_048	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.125	300Ø(In) IL:72.851 300Ø(Out) IL:72.816 300Ø(In) IL:72.851	1.309	D400	600x600	459738.886	223845.688
SMH_009	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.613	300Ø(In) IL:72.706 600Ø(In) IL:72.406 600Ø(Out) IL:72.406	1.207	D400	600x600	459719.006	223820.593
SMH_114	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.936	300Ø(Out) IL:72.750 300Ø(In) IL:-1.333	3.400	D400	600x600	459814.955	223817.846
SMH_302	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.599	600Ø(In) IL:72.065 300Ø(Out) IL:72.065	1.534	D400	600x600	459766.898	223766.074

CHAMBER SCHEDULE: Surface Network								
CHAMBER REF:	TYPE	COVER LEVEL	CONNECTED PIPES	DEPTH	COVER	GRADE	EASTING	NORTHING
SMH_008	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.743	600Ø(In) IL:72.526 600Ø(Out) IL:72.526	1.217	D400	600x600	459692.857	223846.686
SMH_012	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.345	600Ø(In) IL:72.128 600Ø(Out) IL:72.128	1.217	D400	600x600	459774.163	223792.093
SMH_010	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.548	600Ø(In) IL:72.331 600Ø(Out) IL:72.331	1.217	D400	600x600	459728.289	223813.303
SMH_104	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.871	300Ø(In) IL:72.570 300Ø(Out) IL:72.543 300Ø(In) IL:72.570	1.328	D400	600x600	459864.616	223822.898
SMH_022	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.050	300Ø(In) IL:74.012 300Ø(Out) IL:74.012	2.038	D400	600x600	459567.294	224020.608
SMH_023	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.200	300Ø(In) IL:73.955 300Ø(Out) IL:73.955	2.245	D400	600x600	459561.776	224022.424
SMH_016	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.462	300Ø(In) IL:74.181 300Ø(Out) IL:74.181	2.281	D400	600x600	459509.081	224042.512
SMH_017	1.20MØ SFA7 - Type2 - Manhole (B.12)	76.349	300Ø(In) IL:74.104 300Ø(Out) IL:74.104	2.245	D400	600x600	459503.076	224043.723
SMH_028	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.542	300Ø(In) IL:73.680 300Ø(Out) IL:73.680	1.861	D400	600x600	459621.482	223989.442
SMH_029	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.691	300Ø(In) IL:73.658 300Ø(Out) IL:73.658	2.033	D400	600x600	459614.752	223992.848
SMH_034	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.051	300Ø(In) IL:73.419 300Ø(Out) IL:73.419	1.632	D400	600x600	459670.144	223949.984
SMH_035	1.20MØ SFA7 - Type2 - Manhole (B.12)	75.230	300Ø(In) IL:73.397 300Ø(Out) IL:73.397	1.833	D400	600x600	459664.103	223953.694
SMH_040	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.545	300Ø(In) IL:73.170 300Ø(Out) IL:73.170	1.375	D400	600x600	459711.905	223904.557
SMH_041	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.741	300Ø(In) IL:73.137 300Ø(Out) IL:73.137	1.604	D400	600x600	459706.574	223909.742
SMH_046	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.267	300Ø(In) IL:72.918 300Ø(Out) IL:72.918	1.349	D400	600x600	459752.466	223859.502
SMH_047	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.320	300Ø(In) IL:72.885 300Ø(Out) IL:72.885	1.435	D400	600x600	459747.346	223861.409
SMH_102	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.987	300Ø(In) IL:72.626 300Ø(Out) IL:72.626	1.361	D400	600x600	459854.860	223837.746
SMH_103	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.946	300Ø(In) IL:72.611 300Ø(Out) IL:72.611	1.335	D400	600x600	459860.617	223838.456
SMH_106	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.234	300Ø(In) IL:72.327 600Ø(Out) IL:72.327 600Ø(In) IL:71.925	1.309	D400	600x600	459861.714	223774.205
SMH_105	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.299	300Ø(In) IL:72.392 300Ø(Out) IL:72.392	0.907	D400	600x600	459880.782	223780.241
SMH_108	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.346	600Ø(In) IL:72.129 600Ø(Out) IL:72.129	1.217	D400	600x600	459802.617	223770.324
SMH_011	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.456	600Ø(In) IL:72.239 600Ø(Out) IL:72.239	1.217	D400	600x600	459748.001	223801.873
SMH_202	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.166	600Ø(In) IL:71.949 600Ø(Out) IL:71.949	1.217	D400	600x600	459800.721	223736.442
SMH_107	1.50MØ SFA7 - Type2 - Manhole (B.12)	73.465	600Ø(In) IL:72.248 600Ø(Out) IL:72.248	1.217	D400	600x600	459838.331	223770.176
SMH_111	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.208	300Ø(Out) IL:-0.907	3.400	D400	600x600	459793.885	223835.351
SMH_112	1.20MØ SFA7 - Type2 - Manhole (B.12)	74.114	300Ø(In) IL:-1.060 300Ø(Out) IL:-1.160	3.400	D400	600x600	459804.475	223833.836
SMH_113	1.20MØ SFA7 - Type2 - Manhole (B.12)	73.915	300Ø(In) IL:-1.245 300Ø(Out) IL:-1.245	3.400	D400	600x600	459805.641	223817.327

NOTES

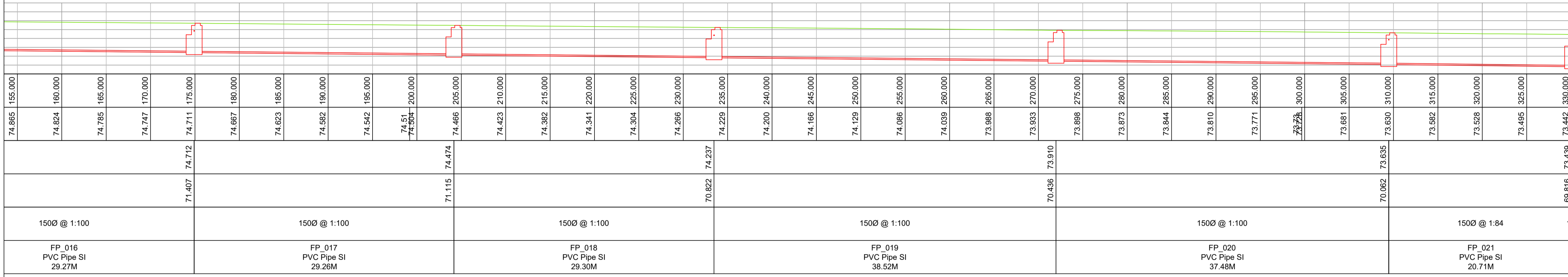
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- All levels are shown in metres above Ordnance Datum (m AOD).

PO1						SUITABLE FOR STAGE 3					
J.MAGEE		03/11/23		J.MAGEE		03/11/23					
REV						REVISION NOTES/COMMENTS					
DRAWN BY		DATE		CHECKED BY		DATE		APPROVED BY		DATE	
						Merchants' House North Wapping Road Bristol BS1 4RW t: +44 (0)117 945 9225 e: bristolcentral@hydrock.com					
						CLIENT					
PROJECT						BICESTER MOTION					
TITLE						MANHOLE SCHEDULE - SURFACE WATER					
HYDROCK PROJECT NO.						SCALE @ A1					
C-27280						NTS					
STATUS DESCRIPTION						STATUS					
SUITABLE FOR STAGE 3						S3					
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER)						REVISION					
27280-HYD-00-ZZ-DR-C-7051						PO1					

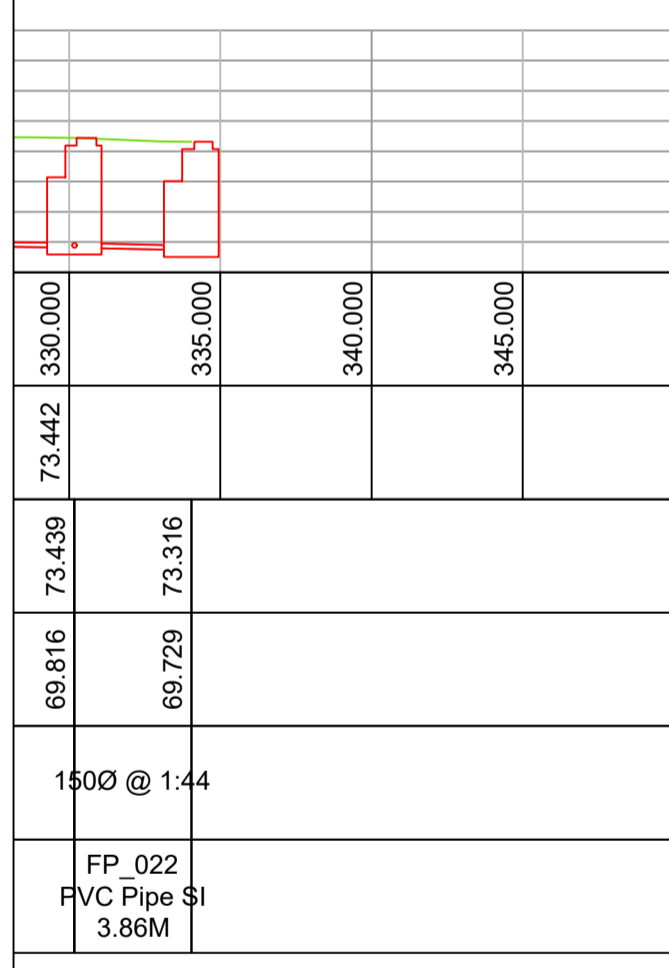


CHAINAGE (M)	00.000	05.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000	140.000	145.000	150.000	155.000			
EXISTING LEVELS REF: DS_PGL		76.083	76.039	75.998	75.958	75.919	75.881	75.837	75.795	75.754	75.716	75.679	75.639	75.594	75.552	75.511	75.471	75.434	75.393	75.350	75.33	75.309	75.269	75.232	75.195	75.153	75.109	75.066	75.026	74.987	74.950	74.907	74.865		
COVER LEVEL REF: Foul Network	76.255						75.890						75.658					75.419							75.186						74.946				
INVERT LEVEL REF: Foul Network	73.301						72.939						72.578					72.285							71.993						71.700				
PIPE DATA REF: Foul Network		1500 @ 1:80							1500 @ 1:80							1500 @ 1:100							1500 @ 1:100												
PIPE DETAILS REF: Foul Network		FP_011 PVC Pipe Si 28.94M							FP_012 PVC Pipe Si 28.91M							FP_013 PVC Pipe Si 29.27M							FP_014 PVC Pipe Si 29.27M							FP_015 PVC Pipe Si 29.26M					

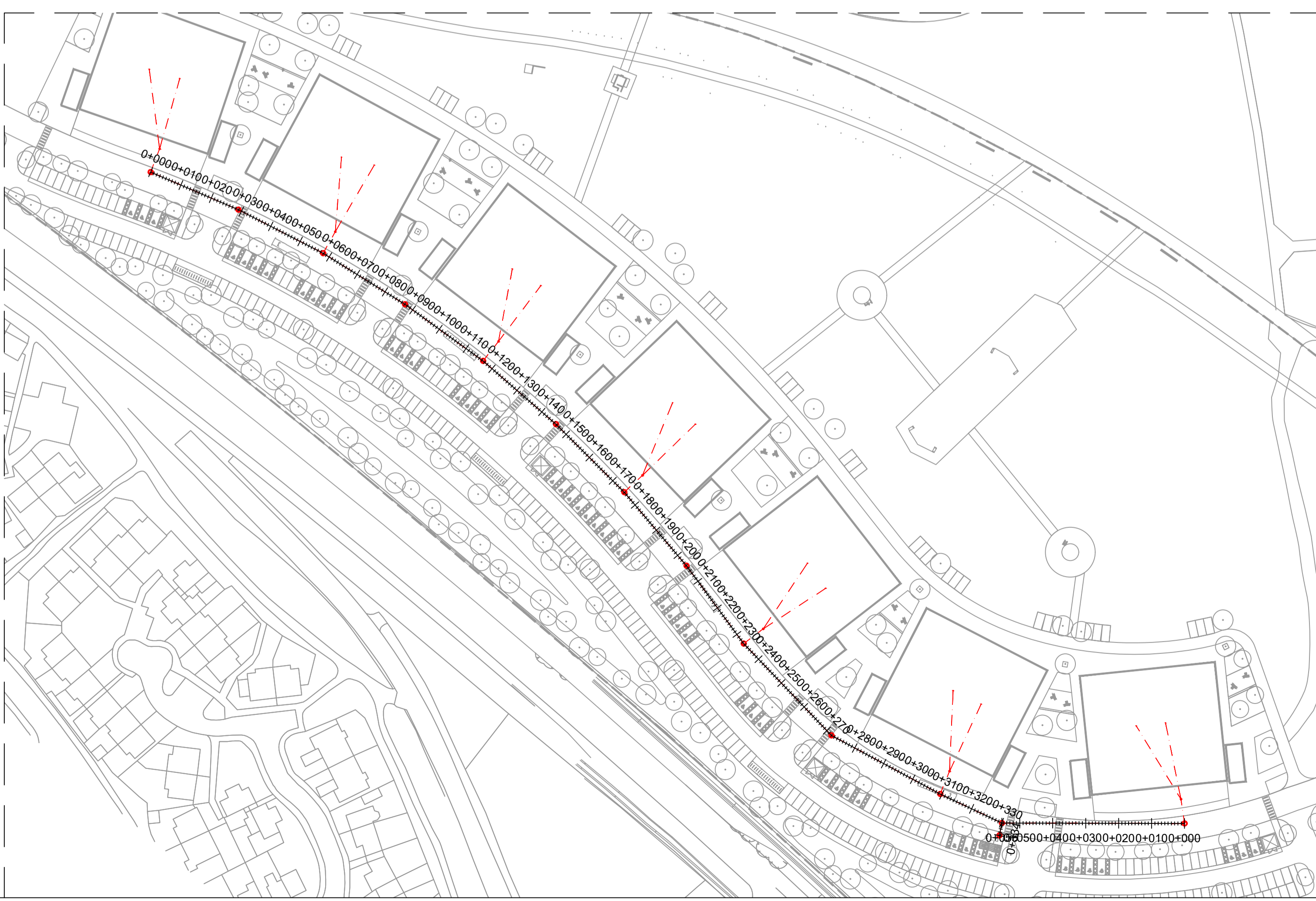
- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
 - All levels are shown in metres above Ordnance Datum (m AOD).



CHAINAGE (M)	155.000	160.000	165.000	170.000	175.000	180.000	185.000	190.000	195.000	200.000	205.000	210.000	215.000	220.000	225.000	230.000	235.000	240.000	245.000	250.000	255.000	260.000	265.000	270.000	275.000	280.000	285.000	290.000	295.000	300.000	305.000	310.000	315.000	320.000	325.000	330.000
EXISTING LEVELS REF: DS_PGL	74.865	74.824	74.785	74.747	74.711	74.667	74.623	74.582	74.542	74.51	74.466	74.423	74.382	74.341	74.304	74.266	74.229	74.200	74.166	74.129	74.086	74.039	73.988	73.933	73.888	73.873	73.844	73.810	73.771	73.728	73.681	73.630	73.582	73.528	73.485	73.442
COVER LEVEL REF: Foul Network					74.712					74.474							74.237								73.910						73.635					73.439
INVERT LEVEL REF: Foul Network					71.407					71.115							70.822								70.436						70.062					69.816
PIPE DATA REF: Foul Network		1500 @ 1:100					1500 @ 1:100					1500 @ 1:100					1500 @ 1:100					1500 @ 1:84														
PIPE DETAILS REF: Foul Network		FP_016 PVC Pipe Si 29.27M					FP_017 PVC Pipe Si 29.26M					FP_018 PVC Pipe Si 29.30M					FP_019 PVC Pipe Si 38.52M					FP_020 PVC Pipe Si 37.48M					FP_021 PVC Pipe Si 20.71M									



CHAINAGE (M)	00.000	05.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000
EXISTING LEVELS REF: DS_PGL		73.620	73.628	73.630	73.629	73.622	73.609	73.589	73.554	73.522	73.486
COVER LEVEL REF: Foul Network	73.812										
INVERT LEVEL REF: Foul Network	70.463										
PIPE DATA REF: Foul Network		1500 @ 1:86									
PIPE DETAILS REF: Foul Network		pipe24 PVC Pipe Si 55.41M									



P01	SUITABLE FOR STAGE 3			
J.MAGEE	03/12/23	J.MAGEE	03/11/23	
REV	REVISION NOTES/COMMENTS			
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
DRAINAGE SECTIONS - FOUL

HYDROCK PROJECT NO. C-27280	SCALE @ A1 NTS	STATUS S2
STATUS DESCRIPTION SUITABLE FOR STAGE 3		REVISION P01
DRAWING NO. (PROJECT CODE-ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7060		

Alignment - (Surface Network) 1

CHAINAGE (M)	-15.000	-10.000	-05.000	00.000	05.000	10.000	15.000	20.000	25.000	30.000	35.000	40.000	45.000	50.000	55.000	60.000	65.000	70.000	75.000	80.000	85.000	90.000	95.000	100.000	105.000	110.000	115.000	120.000	125.000	130.000	135.000	140.000
EXISTING LEVELS REF: DS_PGL					75.711	75.674	75.642	75.610	75.554	75.519	75.483	75.455	75.417	75.382	75.346	75.311	75.052	75.042	75.116	75.062	75.020	74.975	74.930	74.886	74.844	74.811	74.782	74.738	74.686	74.637	74.589	74.543
COVER LEVEL REF: Surface Network				75.708			74.994		75.558							75.051												74.763				
INVERT LEVEL REF: Surface Network				73.596			73.527		73.501							73.338												72.797				
PIPE DATA REF: Surface Network					6000 @ 1:334			6000 @ 1:177		6000 @ 1:250							6000 @ 1:250															
PIPE DETAILS REF: Surface Network					SP_203 PVC Pipe SI 19.79M			SP_203 (1) PVC Pipe SI 4.62M		SP_204 PVC Pipe SI 40.62M							SP_205 PVC Pipe SI 52.53M															

NOTES

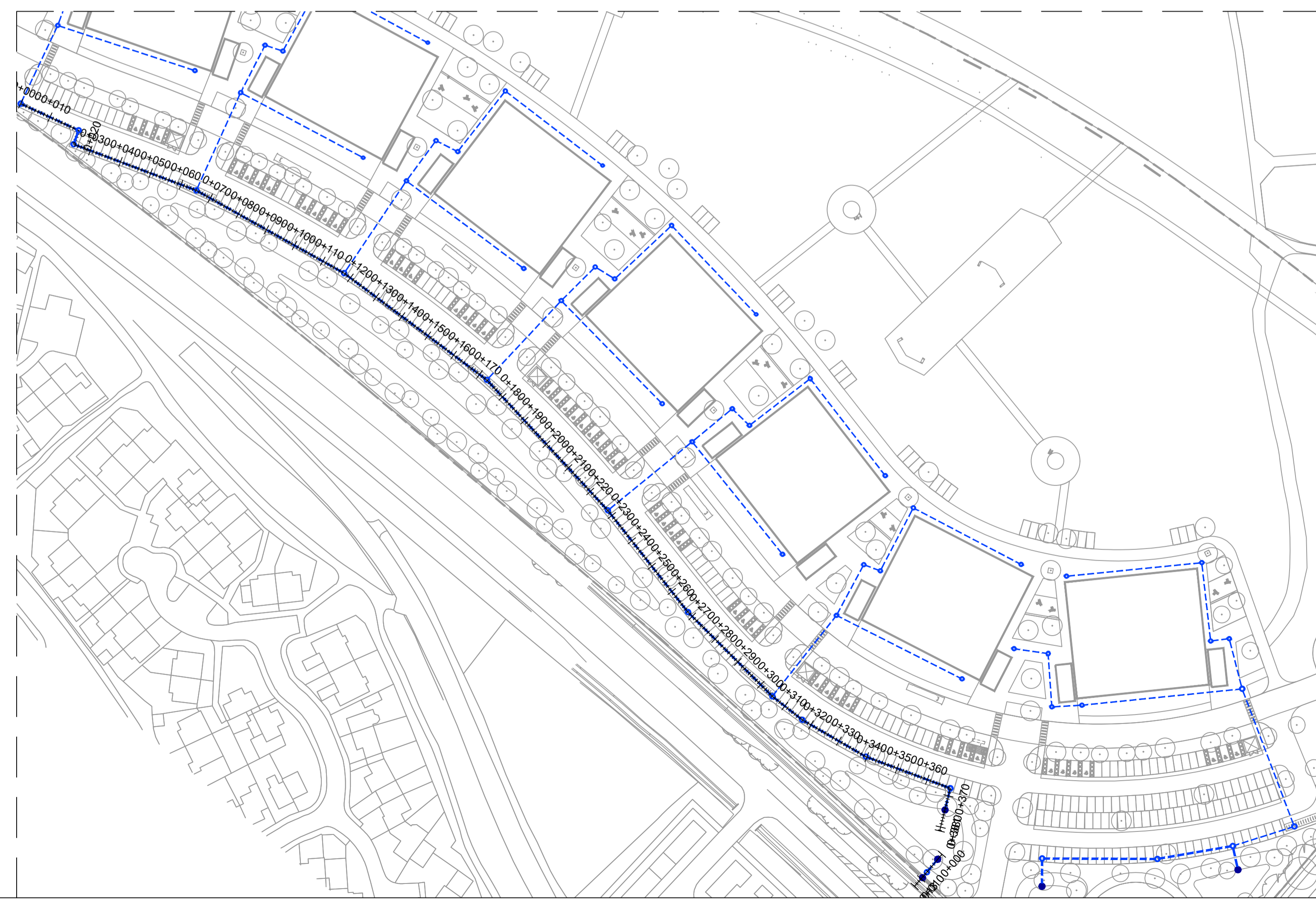
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- All levels are shown in metres above Ordnance Datum (m AOD).

CHAINAGE (M)	145.000	150.000	155.000	160.000	165.000	170.000	175.000	180.000	185.000	190.000	195.000	200.000	205.000	210.000	215.000	220.000	225.000	230.000	235.000	240.000	245.000	250.000	255.000	260.000	265.000	270.000	275.000	280.000	285.000	290.000	295.000	300.000	305.000	310.000	315.000	
EXISTING LEVELS REF: DS_PGL	74.498	74.455	74.415	74.376	74.471	74.497	74.481	74.423	74.253	74.201	74.146	74.097	74.049	74.003	73.959	73.916	73.874	73.830	73.781	73.734	73.687	73.640	73.596	73.550	73.504	73.461	73.424	73.385	73.37	73.344	73.430	73.509	73.568	73.457	73.302	73.275
COVER LEVEL REF: Surface Network							72.835											72.867								72.526							72.406			72.331
INVERT LEVEL REF: Surface Network																																				
PIPE DATA REF: Surface Network	6000 @ 1:250			6000 @ 1:250			6000 @ 1:250			6000 @ 1:250			6000 @ 1:250			6000 @ 1:308			6000 @ 1:157																	
PIPE DETAILS REF: Surface Network	SP_206 PVC Pipe SI 55.23M			SP_207 PVC Pipe SI 55.15M			SP_208 PVC Pipe SI 40.15M			SP_208 (1) PVC Pipe SI 36.94M			SP_210 PVC Pipe SI 11.80M																							

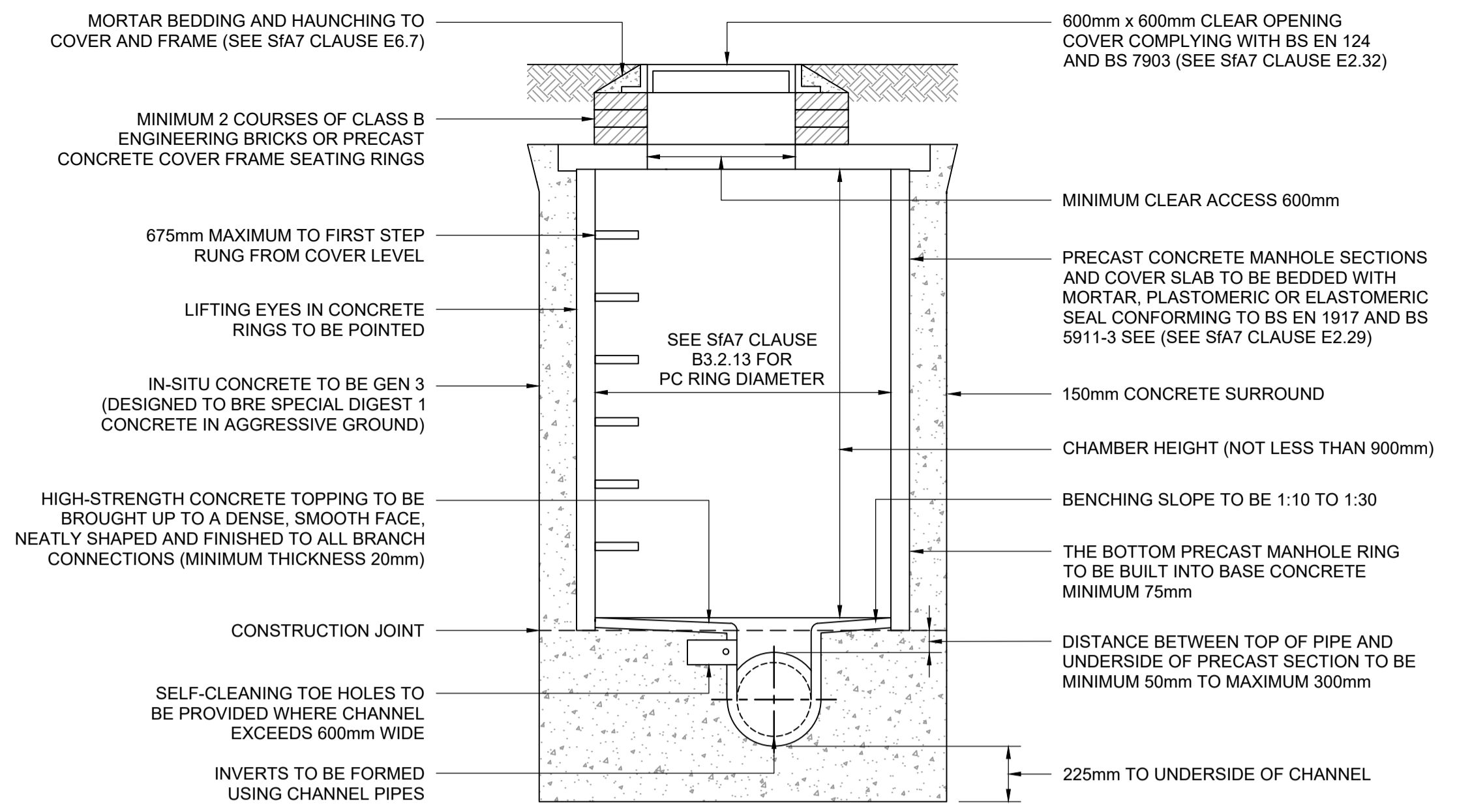
CHAINAGE (M)	315.000	320.000	325.000	330.000	335.000	340.000	345.000	350.000	355.000	360.000	365.000	370.000	375.000
EXISTING LEVELS REF: DS_PGL	73.275	73.244	73.224	73.200	73.173	73.144	73.127	73.109	73.087	73.063	73.034	73.019	72.100
COVER LEVEL REF: Surface Network													72.128
INVERT LEVEL REF: Surface Network													72.749
PIPE DATA REF: Surface Network	6000 @ 1:250			6000 @ 1:250			6000 @ 1:250						
PIPE DETAILS REF: Surface Network	SP_209 PVC Pipe SI 11.80M												

Alignment - (Surface Network) 2

CHAINAGE (M)	00.000	05.000	10.000
EXISTING LEVELS REF: DS_PGL		73.108	13.076
COVER LEVEL REF: Surface Network		73.599	
INVERT LEVEL REF: Surface Network		72.065	
PIPE DATA REF: Surface Network	6000 @ 8000 @ 1:144		
PIPE DETAILS REF: Surface Network	SP_601 PVC Pipe SI 5.21M	SP_602 PVC Pipe SI 2.16M	

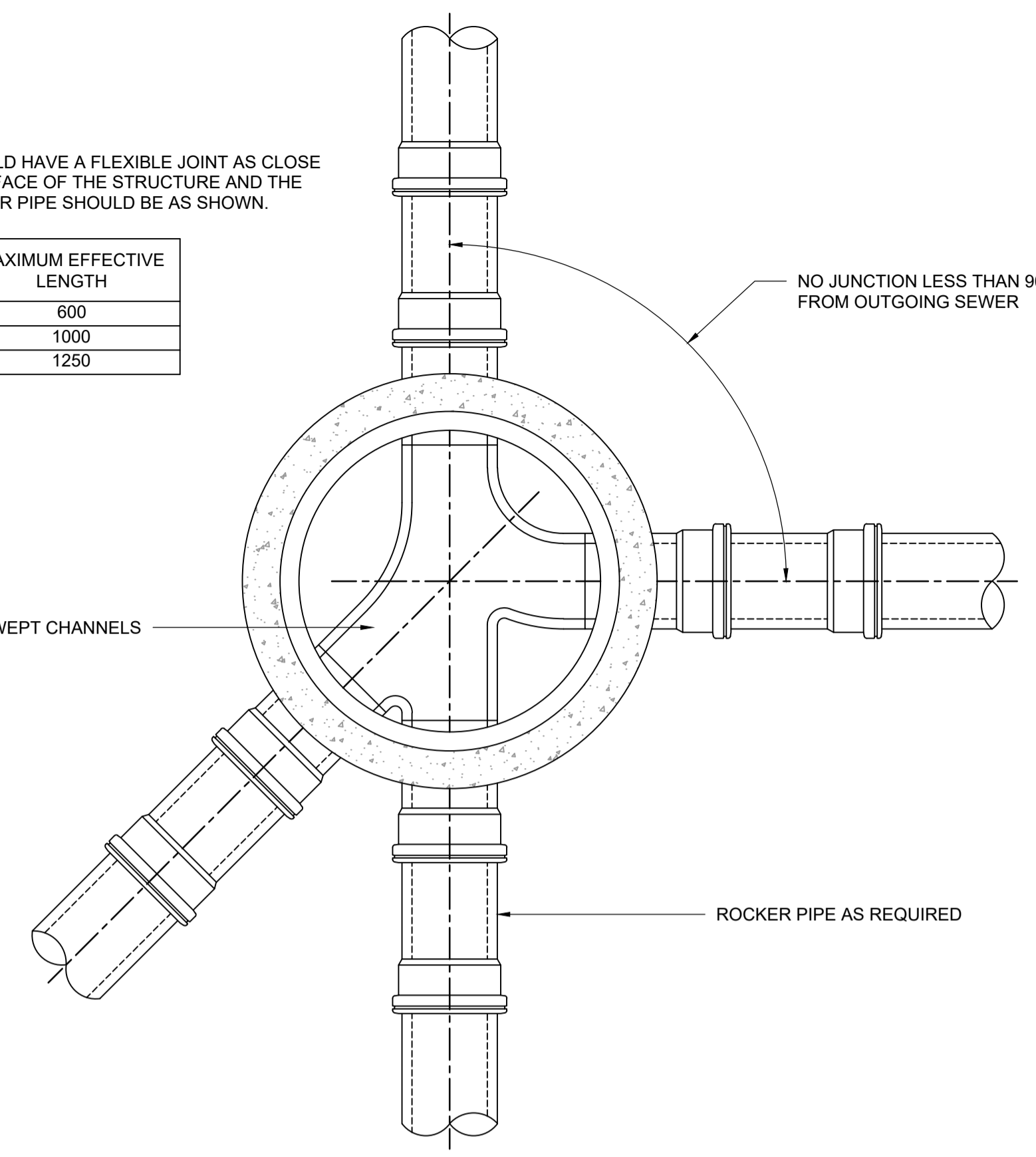


SUITABLE FOR STAGE 3		J.MAGEE		03/12/23		J.MAGEE		03/11/23	
REVISION NOTES/COMMENTS									
DRAWN BY		DATE		CHECKED BY		DATE		APPROVED BY	
CLIENT BICESTER MOTION LIMITED									
PROJECT BICESTER MOTION									
TITLE DRAINAGE SECTIONS - SURFACE									
HYDROCK PROJECT NO. C-27280					SCALE @ A1 NTS				
STATUS DESCRIPTION SUITABLE FOR STAGE 3								STATUS S2	
DRAWING NO. (PROJECT CODE ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7061									
REVISION PO1									



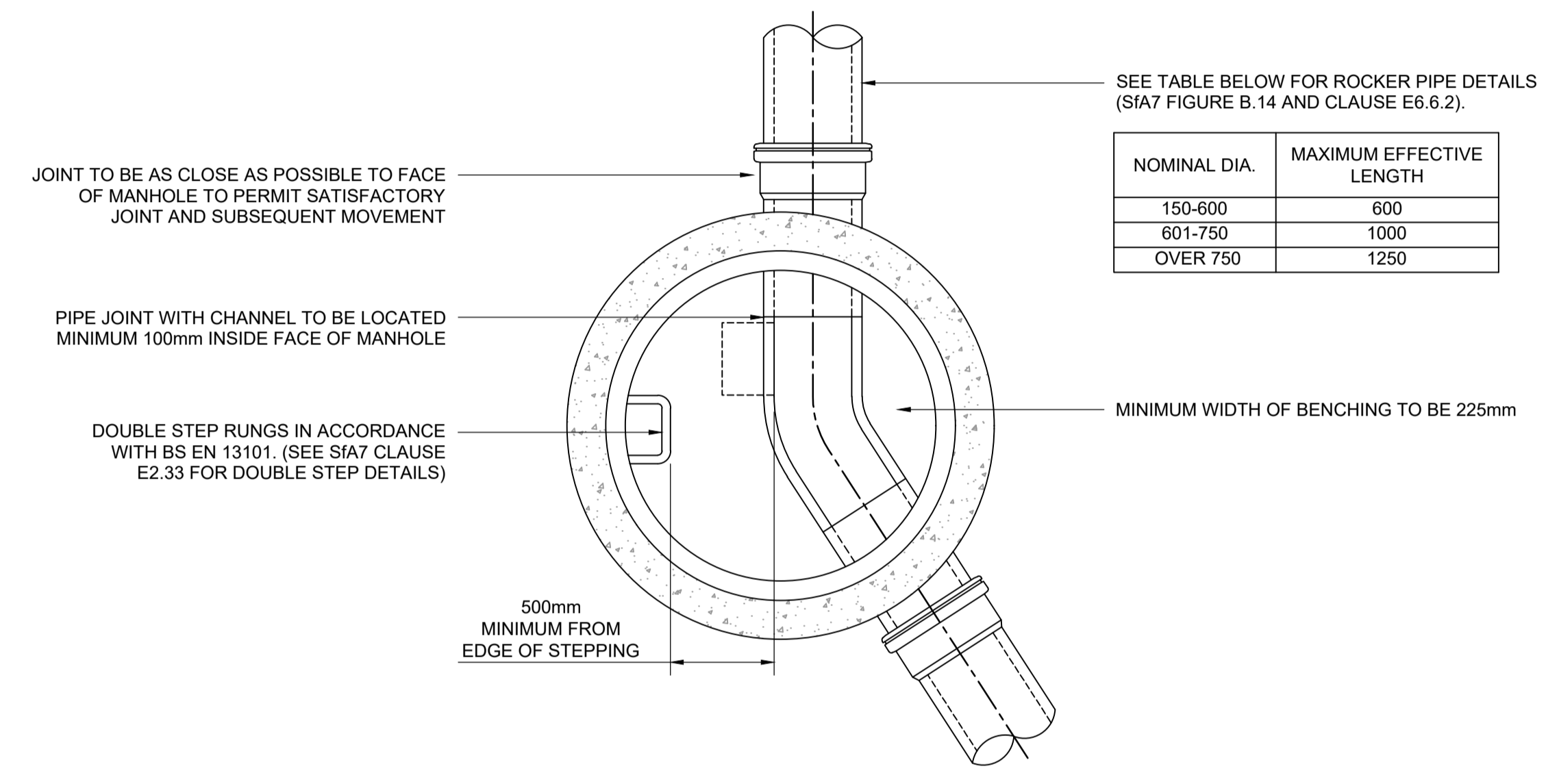
PIPES BUILT INTO MANHOLE SHOULD HAVE A FLEXIBLE JOINT AS CLOSE AS FEASIBLE TO THE EXTERNAL FACE OF THE STRUCTURE AND THE LENGTH OF THE NEXT ROCKER PIPE SHOULD BE AS SHOWN.

NOMINAL DIA.	MAXIMUM EFFECTIVE LENGTH
150-600	600
601-750	1000
OVER 750	1250

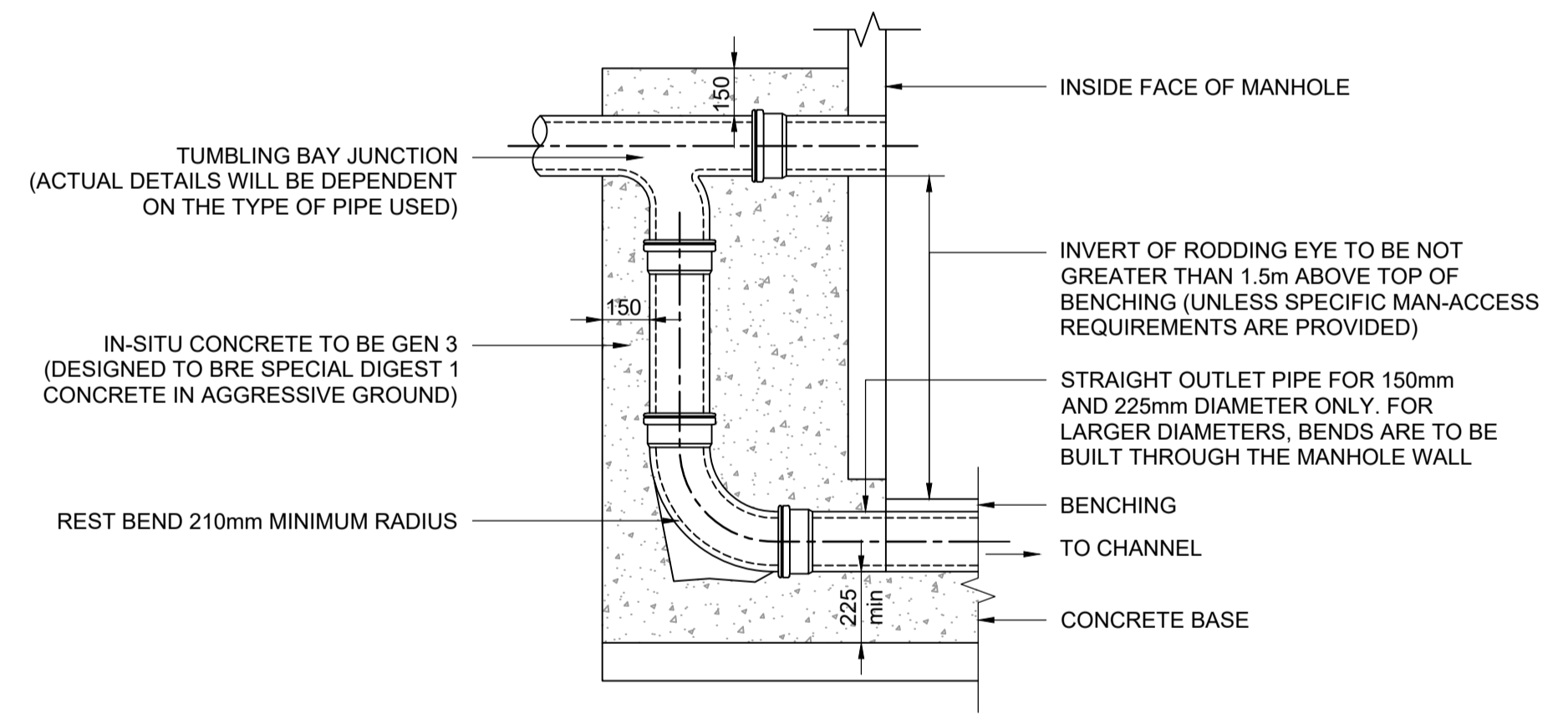


ALL PIPES ENTERING THE BOTTOM OF THE MANHOLE TO HAVE SOFFITS LEVEL.

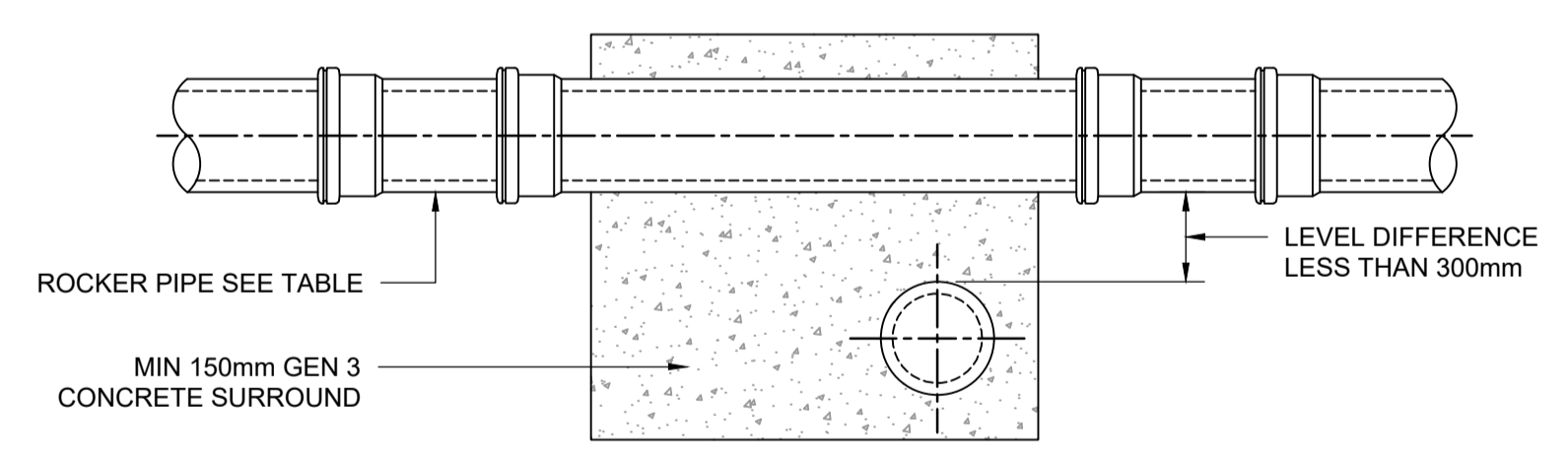
TYPICAL ARRANGEMENT OF PIPE JUNCTIONS WITHIN MANHOLES
SCALE 1:20



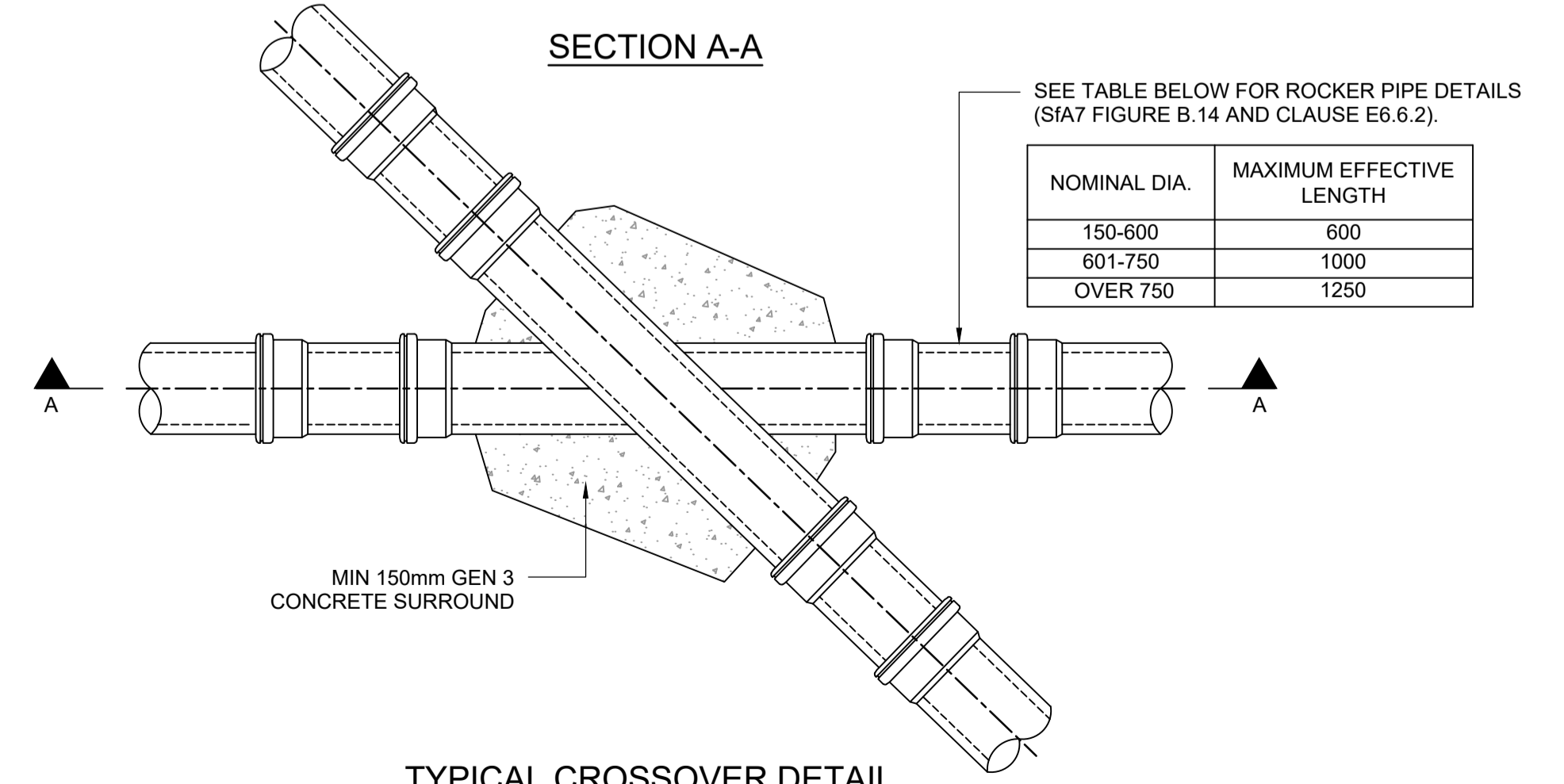
TYPICAL MANHOLE DETAIL - TYPE 2
SCALE 1:20
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3.0m



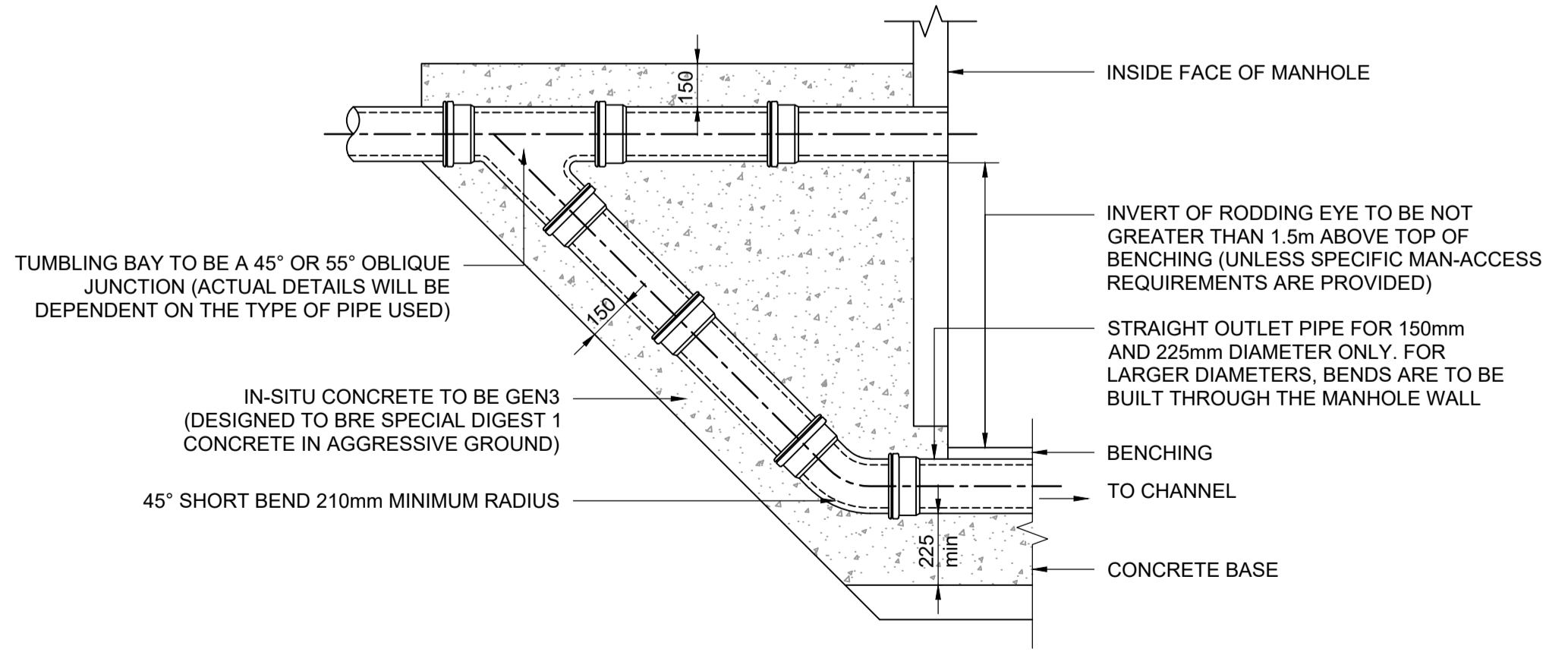
EXTERNAL VERTICAL BACKDROP



SECTION A-A



TYPICAL CROSSOVER DETAIL
SCALE 1:25



EXTERNAL RAMPED BACKDROP

NOTE: STEEPER GRADIENTS ARE PREFERRED TO THE USE OF BACKDROPS. TYPE OF BACKDROP TO BE USED TO BE AGREED WITH UNDERTAKER.
TYPICAL VERTICAL AND RAMPED BACKDROP DETAIL
SCALE 1:20

NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.

P01	SUITABLE FOR STAGE 3	J.MAGEE	03/11/23	J.MAGEE	03/11/23
-----	----------------------	---------	----------	---------	----------

REV	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE
-----	-------------------------	----------	------	------------	------	-------------	------

Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
CLIENT_NAME/LOGO

PROJECT
PROJECT_NAME1
PROJECT_NAME2

TITLE
DRAINAGE DETAILS
SHEET 1

HYDROCK PROJECT NO. C-XXXX-C	SCALE @ A1 AS SHOWN
---------------------------------	------------------------

STATUS DESCRIPTION XXXX	STATUS XX
----------------------------	--------------

DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) ###-HYD-00-ZZ-DR-C-7100	REVISION P01
--	-----------------

PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598-1 AND BS EN 13598-2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

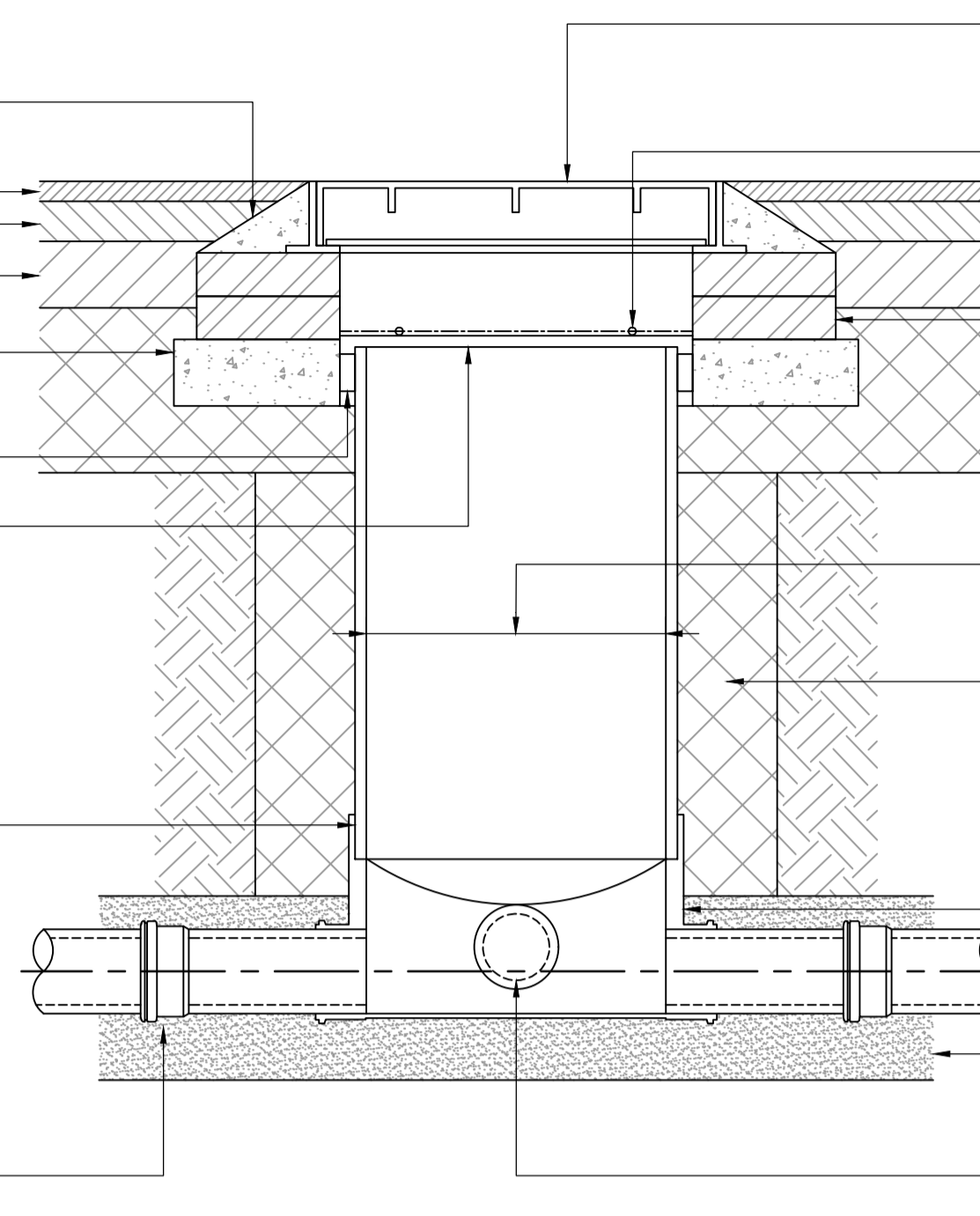
MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO SIA7 CLAUSE E6.7

SURFACE COURSE
BINDER COURSE
BASE COURSE

PRECAST CONCRETE SLAB OR IN-SITU CONCRETE SLAB TO SUPPORT COVER AND FRAME

FLEXIBLE SEAL

TEMPORARILY CAP SHAFT DURING CONSTRUCTION



MANHOLE COVER TO SUIT BS EN 124 LOADING HIGHWAYS - CLASS D400 600mm CLEAR OPENING

ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm IF DEPTH OF CHAMBER TO INVERT IS: >1m (SIA7) >1.2m (BREGS)

CLASS B ENGINEERING BRICKWORK OR PRECAST CONCRETE COVER FRAME SEATING RINGS

DOT TYPE 1 SUB BASE (THICKNESS VARIES)

MINIMUM INTERNAL DIMENSIONS 450mm DIAMETER OR 450mm x 450mm

DOT TYPE 1 SUB BASE (THICKNESS VARIES) OR CONCRETE SURROUND

BASE UNIT TO HAVE ALL CONNECTIONS WITH SOFFIT LEVELS SET NO LOWER THAN THAT OF THE MAIN PIPE

GRANULAR BEDDING MATERIAL

INVERT OF CONNECTING PIPE AT LEAST 50mm ABOVE THAT OF THE MAIN PIPE

NOTE: WHERE THE ACCESS CHAMBER IS IN THE HIGHWAY THE HIGHWAY AUTHORITY CAN HAVE SPECIFIC REQUIREMENTS

TYPICAL INSPECTION CHAMBER DETAIL - TYPE 3 (Flexible material detail)

SCALE 1:10
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE IN AREAS SUBJECT TO VEHICLE LOADING 3m, NON-ENTRY

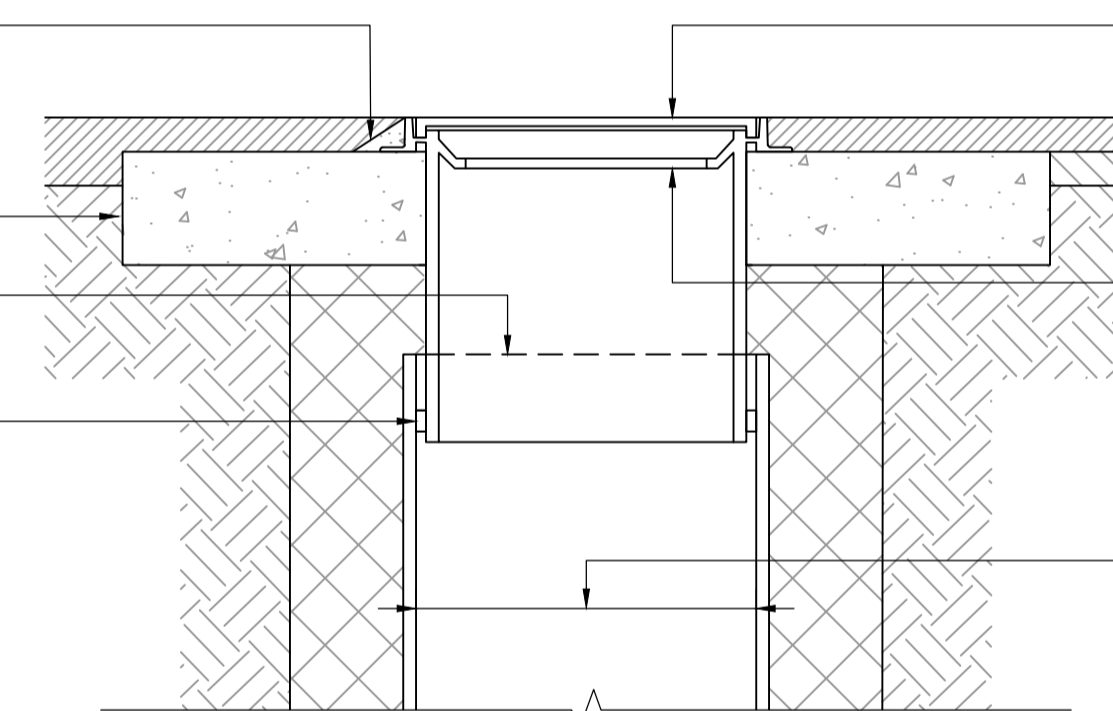
PLASTIC CHAMBERS AND RINGS SHALL COMPLY WITH BS EN 13598-1 AND BS EN 13598-2 OR HAVE EQUIVALENT INDEPENDENT APPROVAL

MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO SIA7 CLAUSE E6.7

150mm DEEP CONCRETE COLLAR

TEMPORARILY CAP SHAFT DURING CONSTRUCTION

FLEXIBLE SEAL



COVER COMPLYING WITH BS EN 124 AND BS 7903 DRIVEWAYS, FOOTWAYS AND LANDSCAPED AREAS - CLASS B125 (SEE SIA7 CLAUSE E2.32)

ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm X 300mm IF DEPTH OF CHAMBER TO INVERT IS > 1m

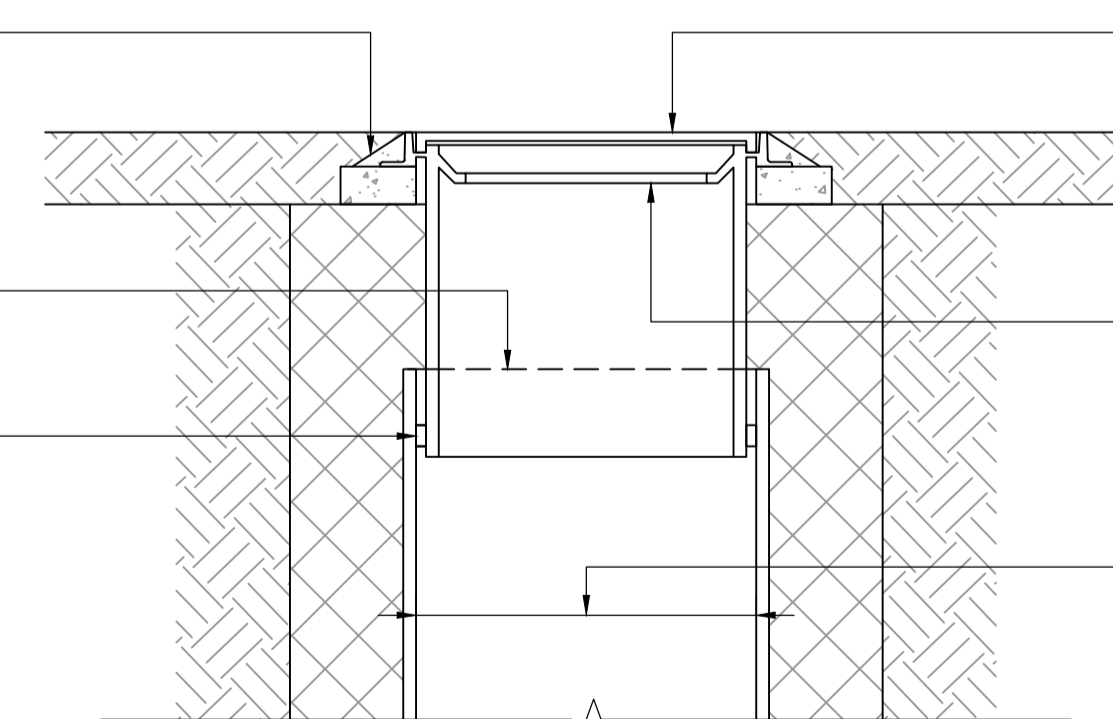
MINIMUM INTERNAL DIMENSIONS 450mm DIAMETER OR 450mm x 450mm

SITED IN DOMESTIC DRIVEWAYS OR FOOTWAYS

MORTAR BEDDING AND HAUNCHING TO COVER AND FRAME TO SIA7 CLAUSE E6.7

TEMPORARILY CAP SHAFT DURING CONSTRUCTION

FLEXIBLE SEAL



COVER COMPLYING WITH BS EN 124 AND BS 7903 GARDENS - CLASS A15 (SEE SIA7 CLAUSE E2.32)

TOPSOIL

ACCESS OPENING RESTRICTED TO 350mm DIAMETER OR 300mm x 300mm IF DEPTH OF CHAMBER TO INVERT IS > 1m

MINIMUM INTERNAL DIMENSIONS 450mm DIAMETER OR 450mm x 450mm

SITED IN DOMESTIC GARDENS

NOTE: WHERE THE ACCESS CHAMBER IS IN THE HIGHWAY THE HIGHWAY AUTHORITY CAN HAVE SPECIFIC REQUIREMENTS

ALTERNATIVE TOP DETAILS FOR LIGHT VEHICLE LOADING AND LANDSCAPED AREAS - TYPE 3

SCALE 1:10

USE OF GRANULAR BEDDING MATERIAL:

NOMINAL BORE OF PIPE (min)	AGGREGATE SIZE (mm)	
	SINGLE SIZED	GRADED
100	10	-
150	10 OR 14	14 TO 5
225-300	10,14 OR 20	14 TO 5 OR 20 TO 5
375-525	14 OR 20	14 TO 5 OR 20 TO 5
EXCEEDING	14,20 OR 40	14 TO 5 OR 20 TO 5
525	-	40 TO 5

DIM X ≥ 100mm FOR PIPES ≤ 100mmØ
DIM X ≥ 150mm FOR PIPES > 100mmØ
DIM X ≥ 200mm FOR PIPES TRENCHES IN ROCK

NOTES:

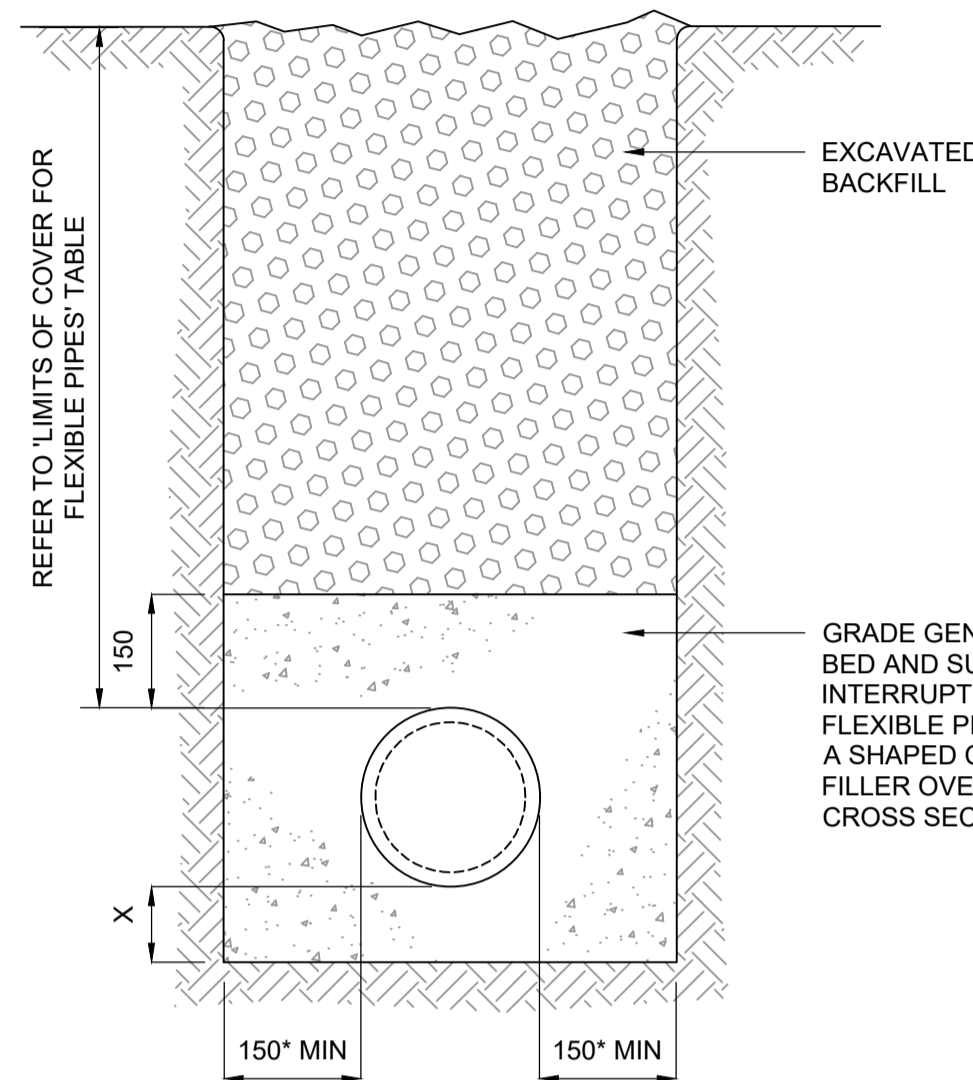
- * = 150 FOR PIPES DIAMETER UP TO 300mm.
* = 200mm FOR PIPE DIAMETERS OVER 300mmØ

BASED ON NARROW TRENCH THEORY: DESIGNER TO CONFIRM FOR SPECIFIC PIPELINE.

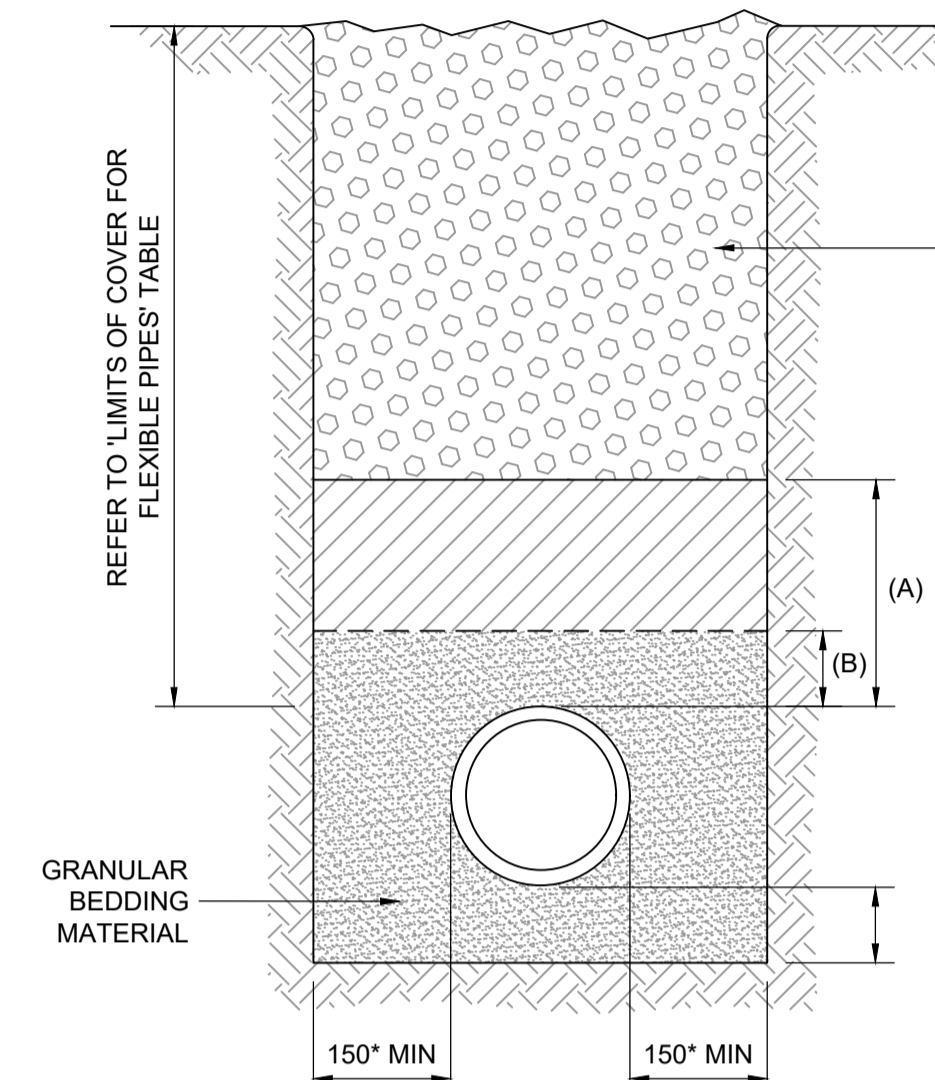
2. BACKFILL MATERIAL TO BE SELECTED EXCAVATED MATERIAL WHERE THIS MATERIAL COMPLIES WITH CESWI. ADDITIONAL MATERIAL TO MAKE UP ANY DEFICIENCY TO BE GRANULAR SUB-BASE TYPE 1 UNLESS STATED OTHERWISE.

3. IN WET, SOFT, OR SILTY SOILS, WHERE LATERAL SUPPORT IS NOT OBTAINED OR WHERE FINES MAY MIGRATE, THE GRANULAR BEDDING MATERIAL SHALL BE SURROUNDED BY GEOTEXTILE FABRIC WITH MIN 200 OVERLAP.

4. TRENCH BACKFILL TO MEET HIGHWAY SPECIFICATION WHEN LAID IN ROAD OR FOOTPATH.



**CLASS Z BEDDING
CONCRETE SURROUND**



CLASS P BEDDING

* 150 FOR PIPES DIAMETER <300mm
200mm FOR PIPE DIAMETERS >300mmØ

(A) 300mm SELECTED FILL MATERIAL FREE FROM STONES LARGER THAN 40mm (SEE NOTES). COMPACTED BY HAND IN 100mm LAYERS

OR

(B) WHERE BACKFILL ABOVE PIPE CONTAINS STONES LARGER THAN 40mm OR WHERE PIPEWORK IS DEEPER THAN 2m IN POOR GROUND, THE GRANULAR MATERIAL SHOULD EXTEND AT LEAST 100mm ABOVE PIPE CROWN

GRANULAR BEDDING MATERIAL COMPACTED OVER FULL WIDTH OF TRENCH
THICKNESS (MIN):
100mm FOR PIPES ≤ 100mmØ
150mm FOR PIPES > 100mmØ
200mm FOR PIPES TRENCHES IN ROCK

TYPICAL PIPE BEDDING FOR PIPES UP TO 800mm DIA

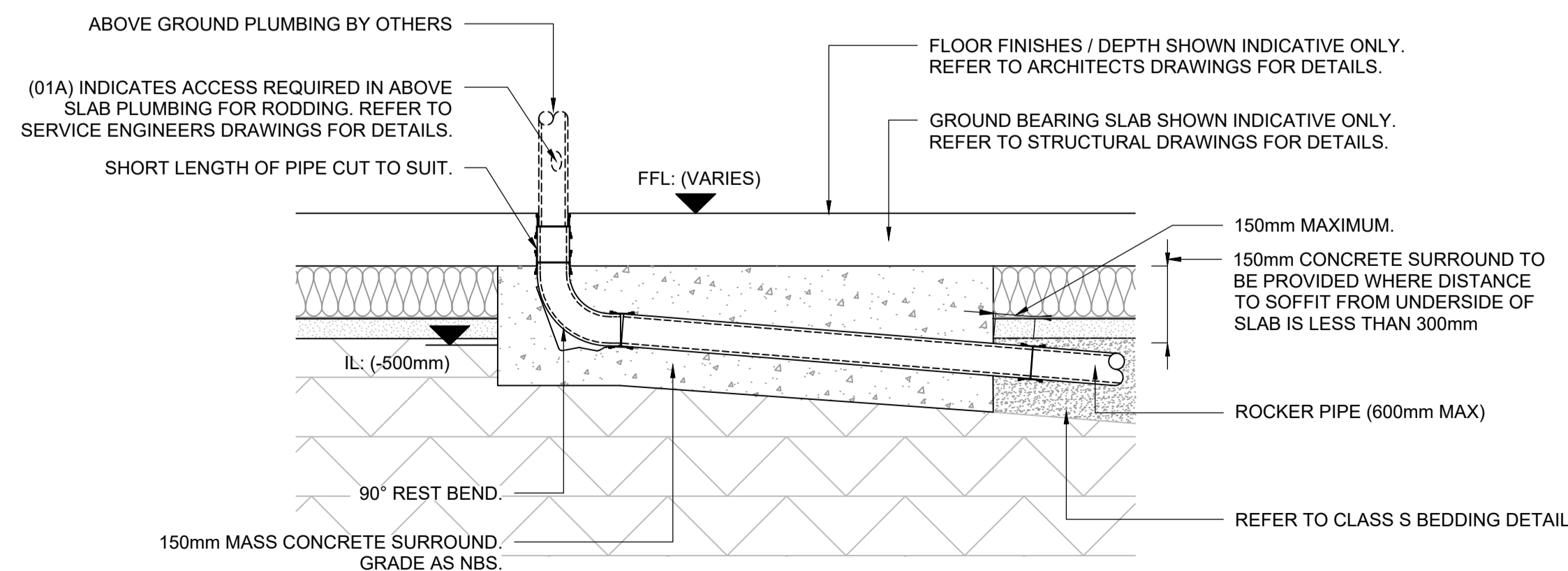
SCALE 1:10

FOR AREAS ADOPTED HIGHWAYS	FOR AREAS SUBJECT TO LIGHT VEHICULAR ACCESS	FOR AREAS NOT UNDER ROADS OR BUILDINGS
USE CLASS P BEDDING WHERE COVER IS: 1.2m Min & 8.0m Max - FOR 100mm DIA PIPES 1.2m Min & 4.0m Max - FOR 150mm DIA PIPES OR GREATER	USE CLASS P BEDDING WHERE COVER IS: 0.9m Min & 8.0m Max - FOR 100mm DIA PIPES 0.9m Min & 5.0m Max - FOR 150mm DIA PIPES OR GREATER	USE CLASS P BEDDING WHERE COVER IS: 0.6m Min & 8.0m Max - FOR 100mm DIA PIPES 0.6m Min & 5.0m Max - FOR 150mm DIA PIPES OR GREATER
FOR DEFINITION OF AREAS OF ADOPTED HIGHWAY SEE LAYOUT DRG	FOR DEFINITION OF AREAS OF VEHICLE ACCESS SEE LAYOUT DRG	
WHERE COVER IS LESS THAN THE ABOVE: FOR UPVC PIPE USE OPTION 1 CLASS Z + REINFORCEMENT AS RECOMMENDED IN BS9555-6:1980 OR OPTION 2 CLASS Q BEDDING + RC SLAB PROTECTION. REFER TO NBS FOR DETAILS.		WHERE COVER IS LESS THAN THE ABOVE: FOR UPVC PIPE USE CLASS Z

NOTE:
REFERENCE SHOULD BE MADE TO PIPE MANUFACTURER/SUPPLIER TO CONFIRM THE LIMITS OF COVER NOTED ABOVE ARE ACCEPTABLE

LIMITS OF COVER TO FLEXIBLE (PVCu) PIPES

BS EN 752 & BUILDING REGS PART H



TYPICAL INTERNAL OUTLET: 01 & 01A FOR GROUND BEARING SLAB

SCALE 1:20
(REFER TO DRAINAGE LAYOUT FOR LOCATION)

KEY PLAN

NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.

SUITABLE FOR STAGE 3					
PO1	J.MAGEE	03/11/23	J.MAGEE	03/11/23	

REVISION NOTES/COMMENTS					
REV	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

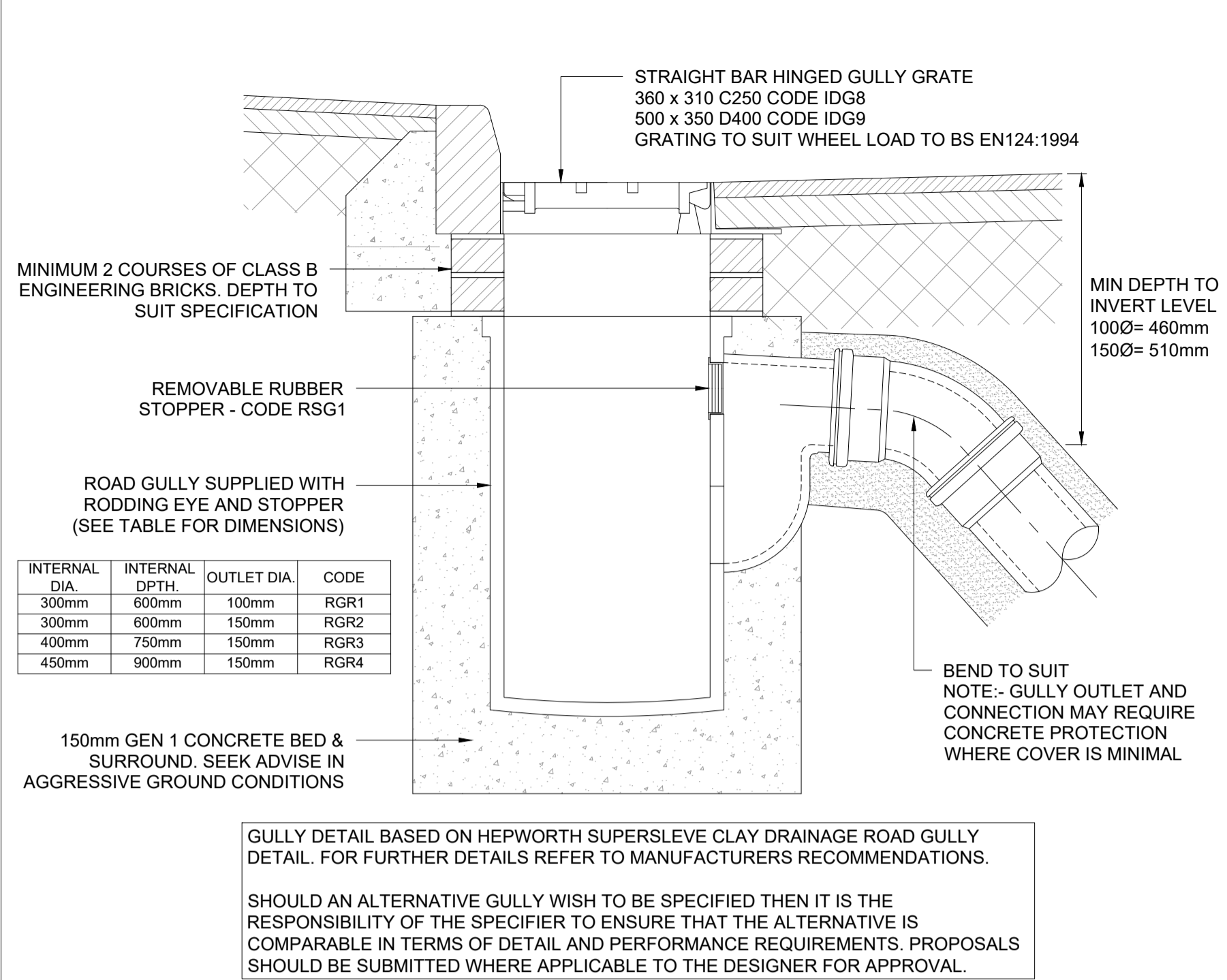
PROJECT
BICESTER MOTION

TITLE
DRAINAGE DETAILS SHEET 2

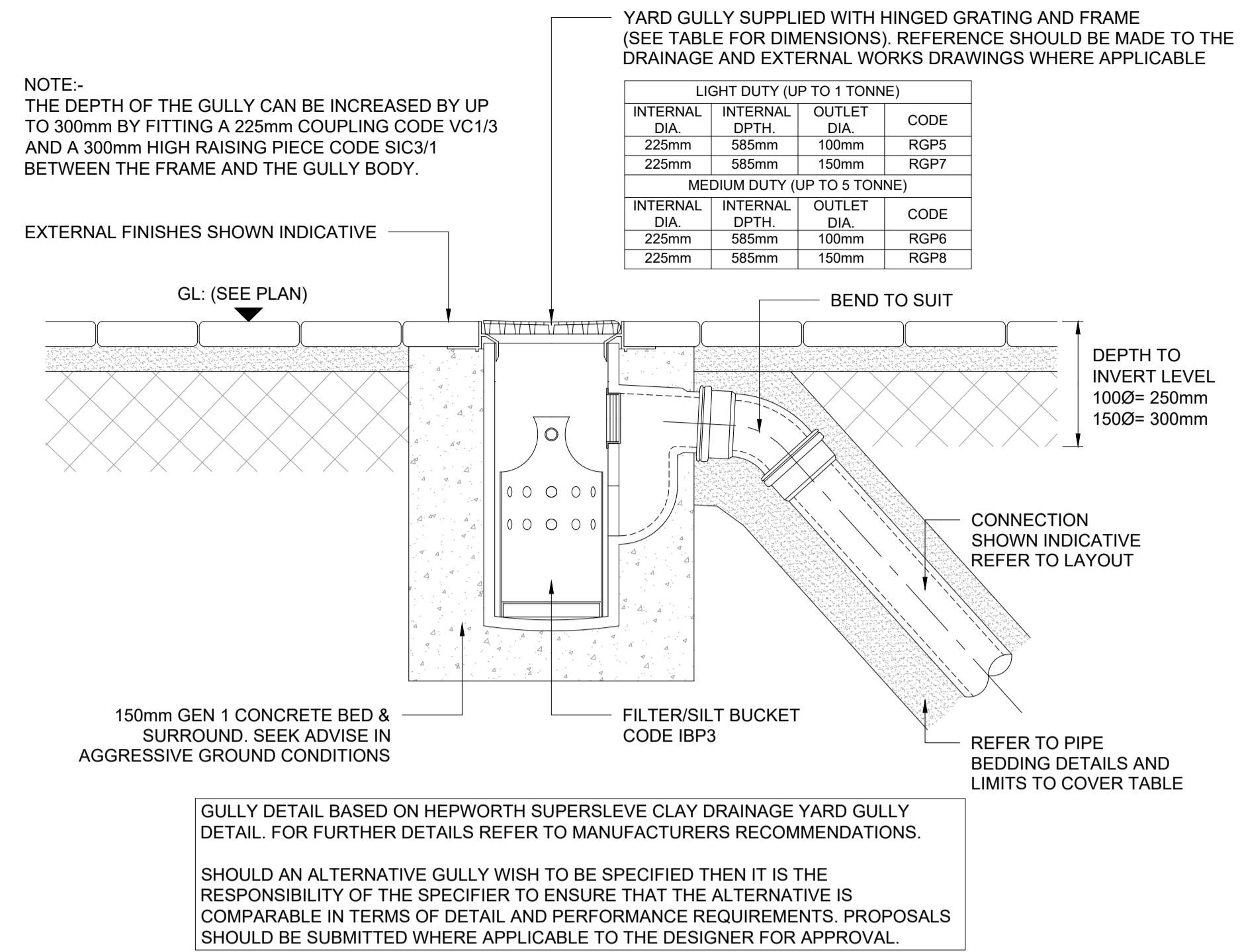
HYDROCK PROJECT NO. C-27280	SCALE @ A1 AS SHOWN
--------------------------------	------------------------

STATUS DESCRIPTION SUITABLE FOR STAGE 3	STATUS S2
--	--------------

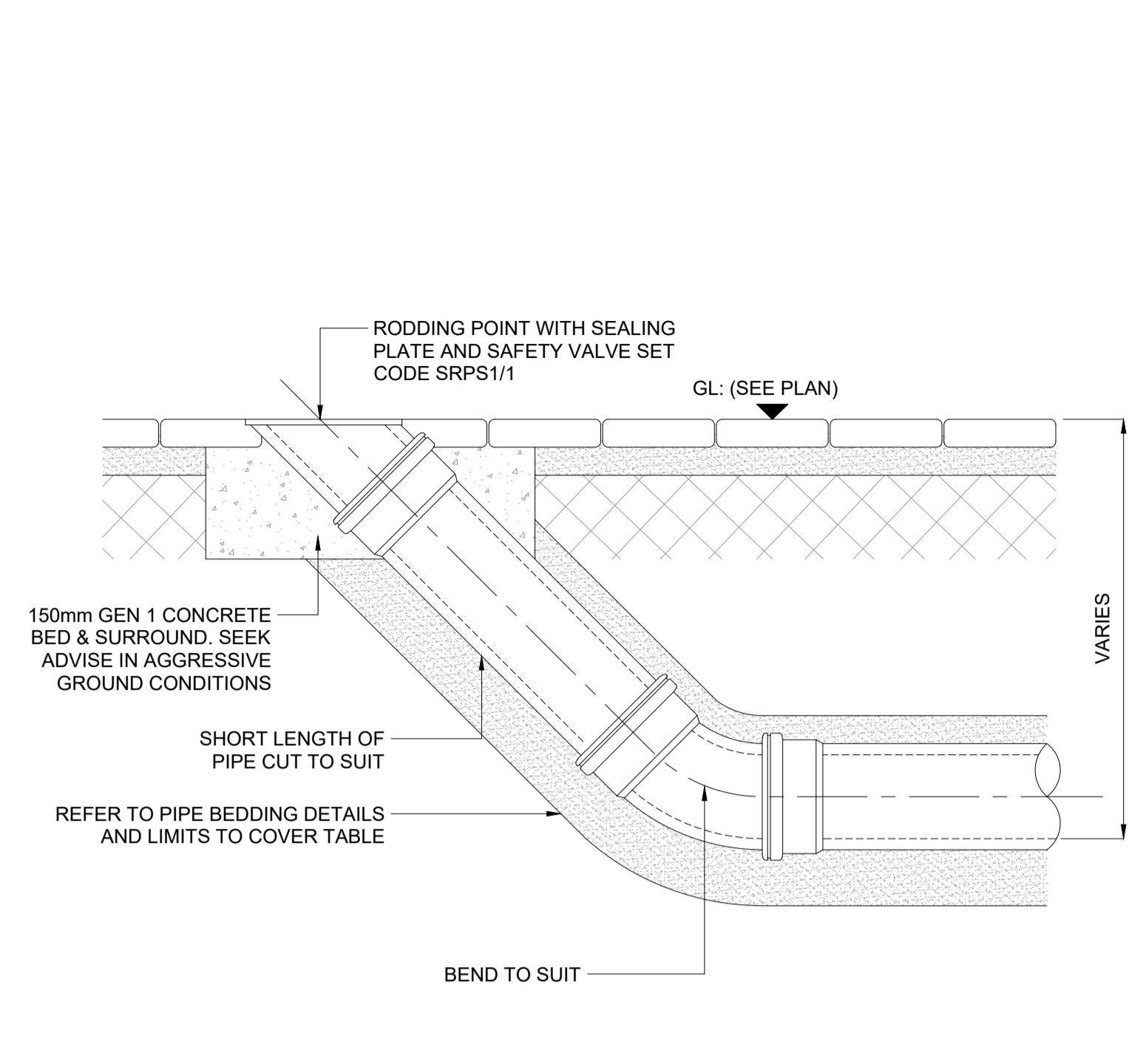
DRAWING NO. (PROJECT CODE-ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7101	REVISION PO1
--	-----------------



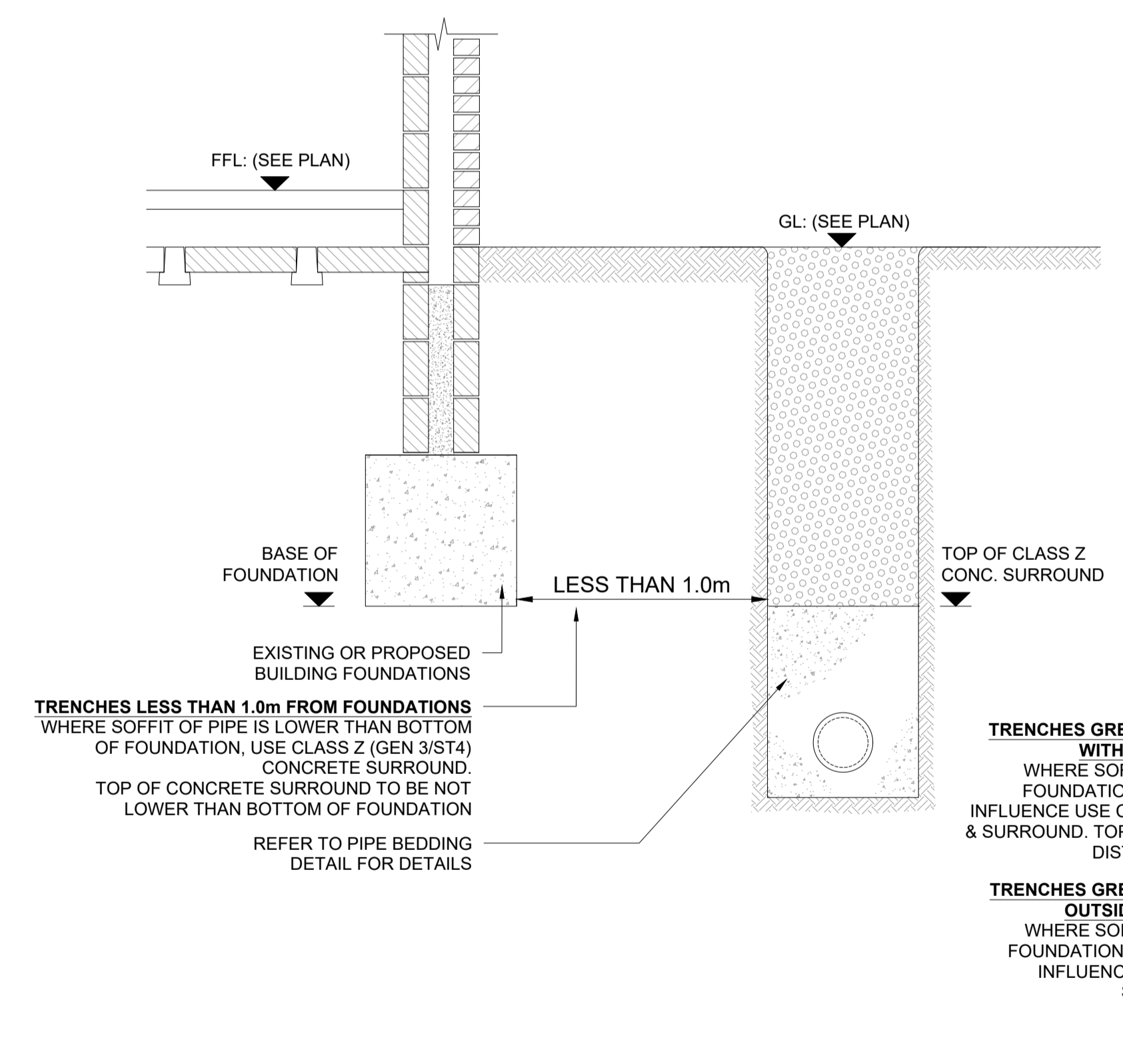
DETAIL RG: ROAD GULLY
SCALE 1:10



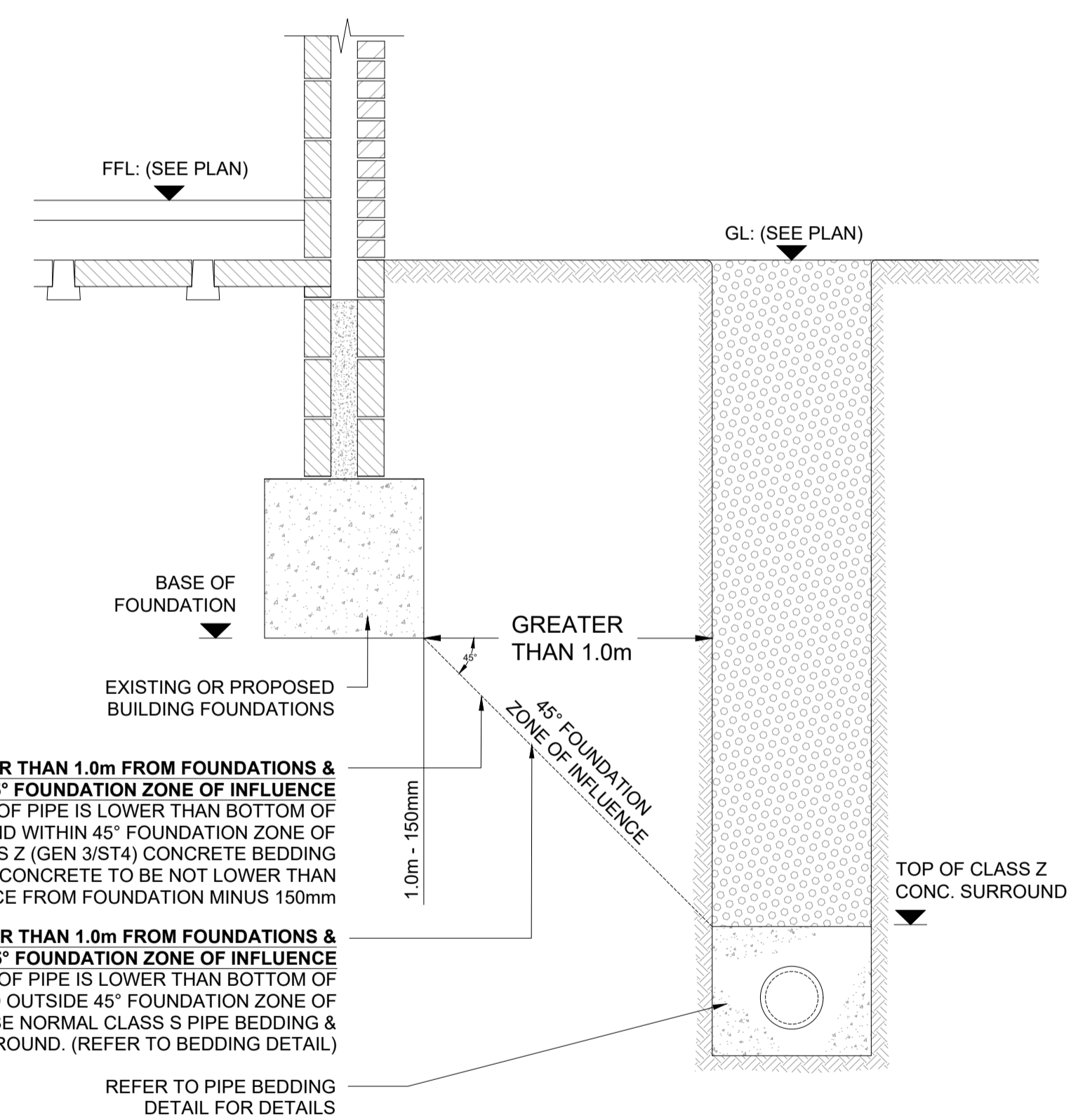
DETAIL YG: YARD GULLY
SCALE 1:10



- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.



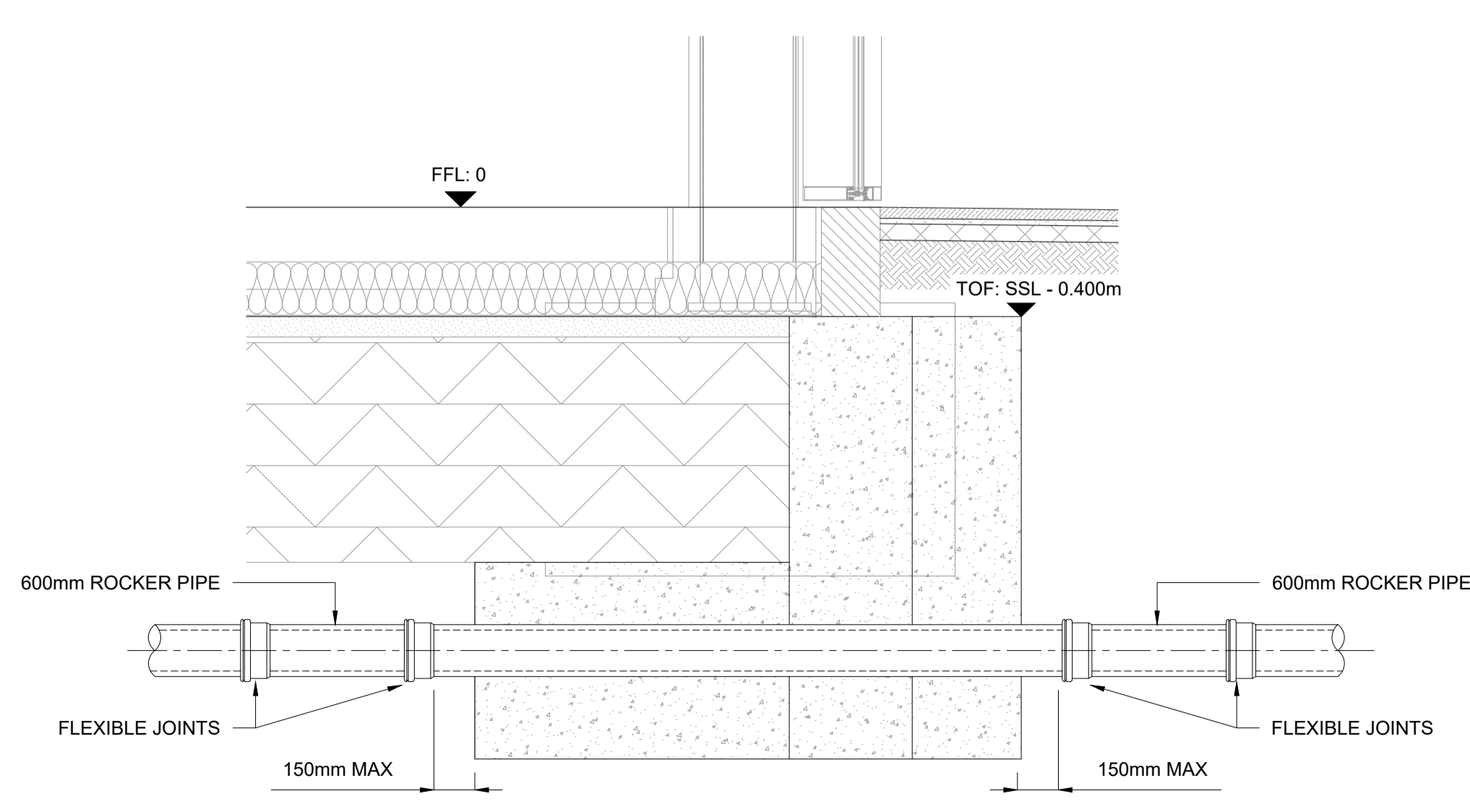
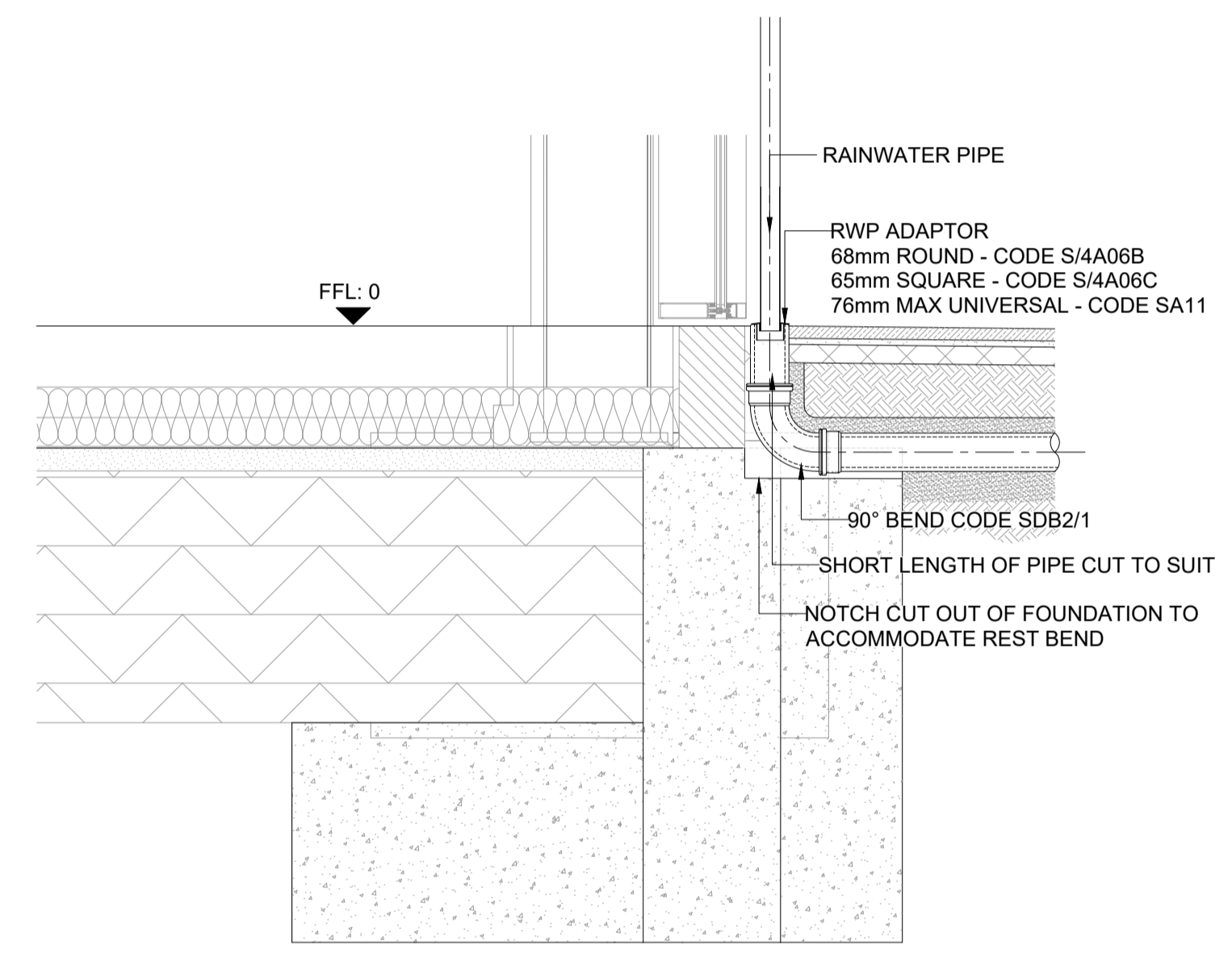
DRAINAGE TRENCH LESS THAN 1.0m FROM EXISTING/PROPOSED FOUNDATIONS



DRAINAGE TRENCH GREATER THAN 1.0m FROM EXISTING/PROPOSED FOUNDATIONS

PIPE PROTECTION ADJACENT TO EXISTING/PROPOSED FOUNDATIONS

SCALE 1:20



TYPICAL DRAIN THROUGH FOUNDATION DETAIL

SCALE 1:20

P01	SUITABLE FOR STAGE 3	J.MAGEE	03/11/23	J.MAGEE	03/11/23		
REV	REVISION NOTES/COMMENTS	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

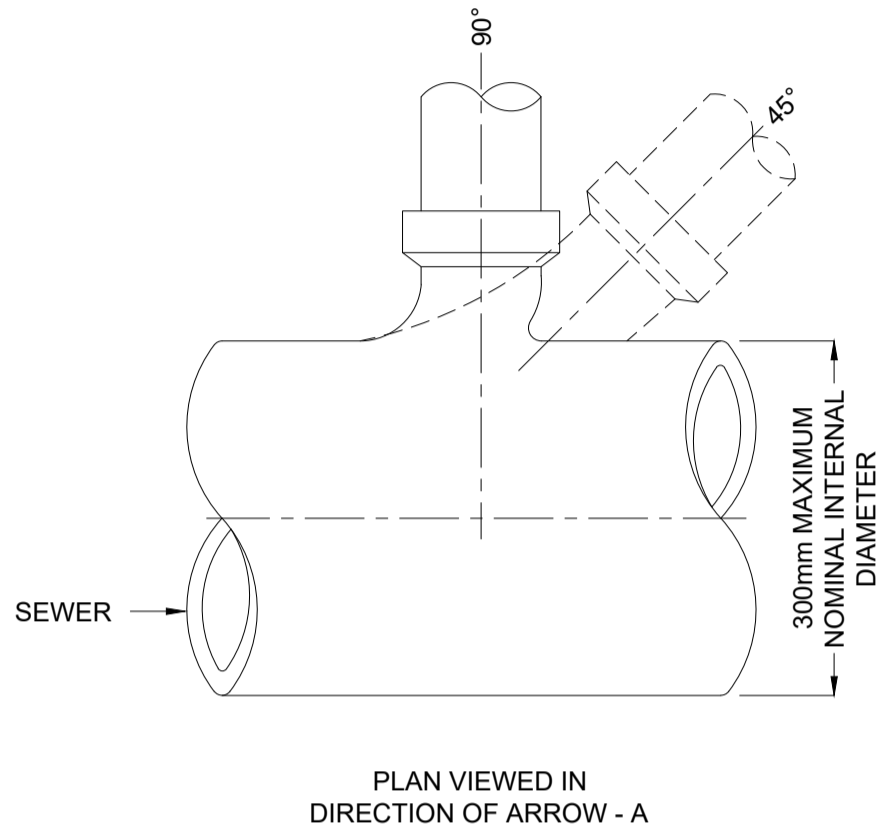
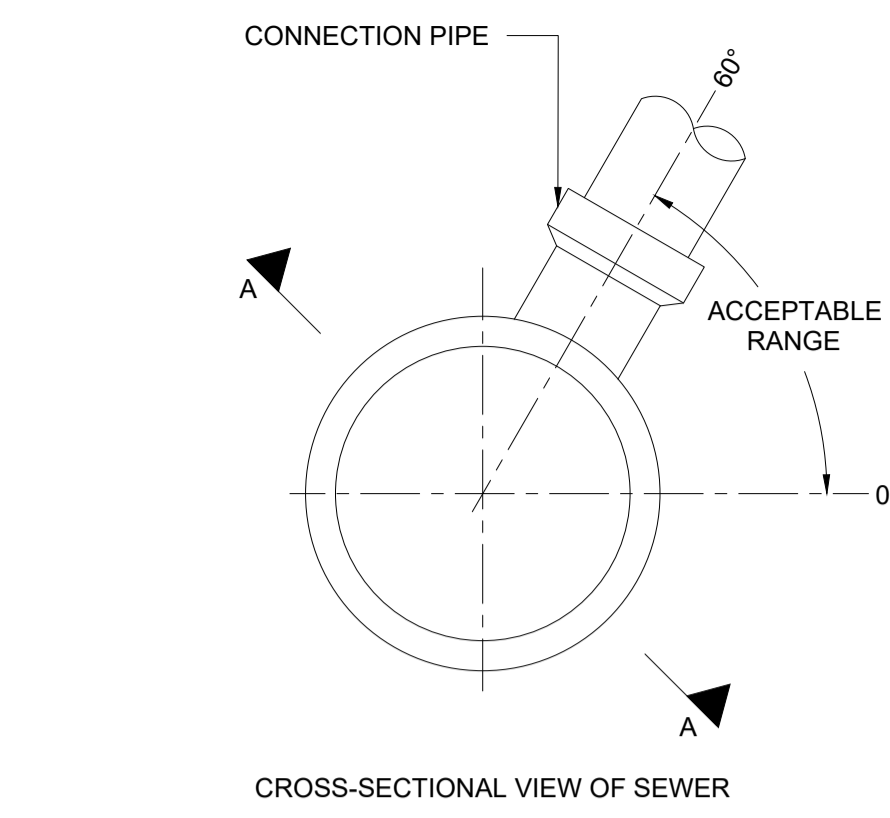
Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

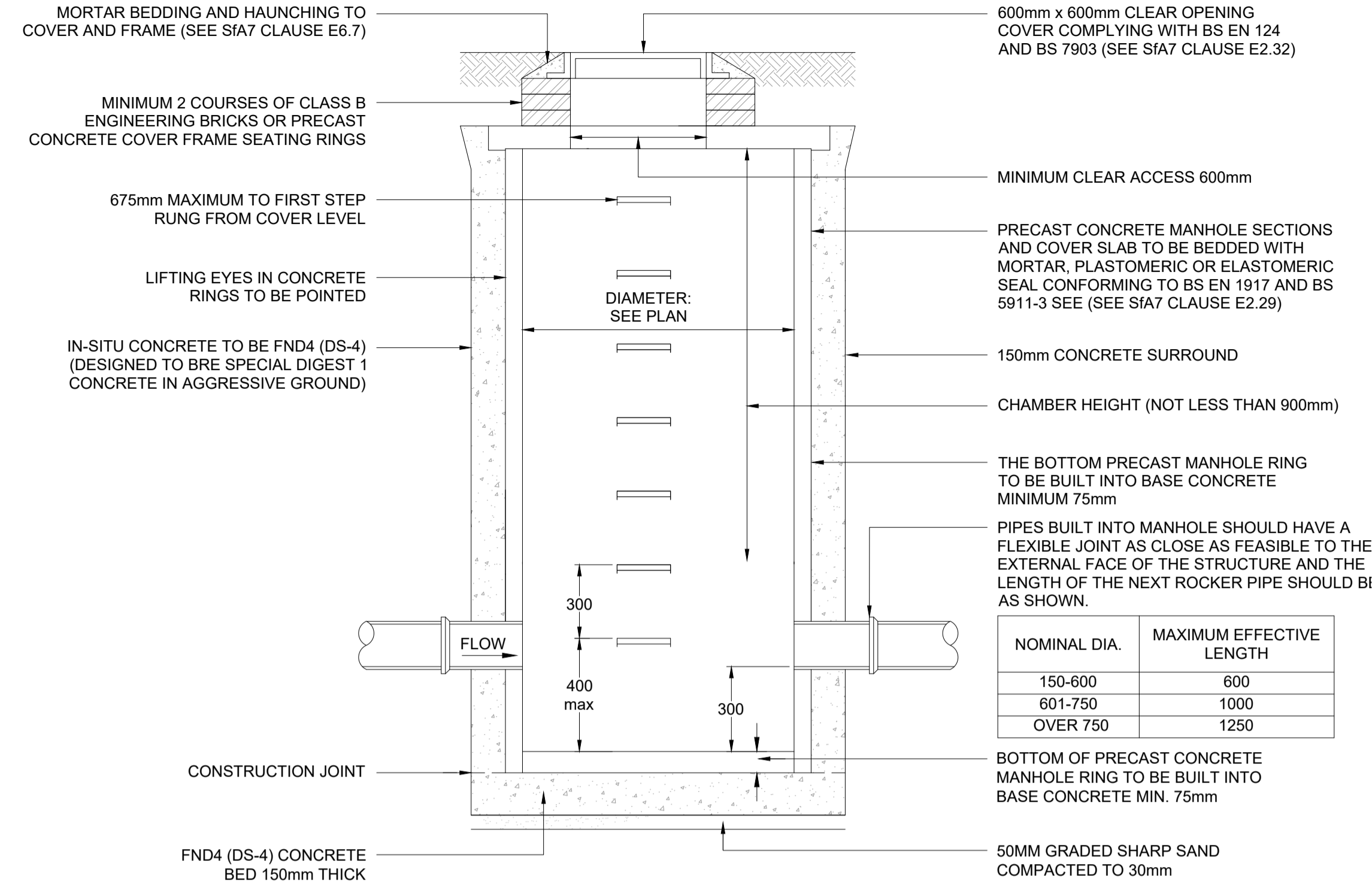
PROJECT
BICESTER MOTION

TITLE
DRAINAGE DETAILS
SHEET 3

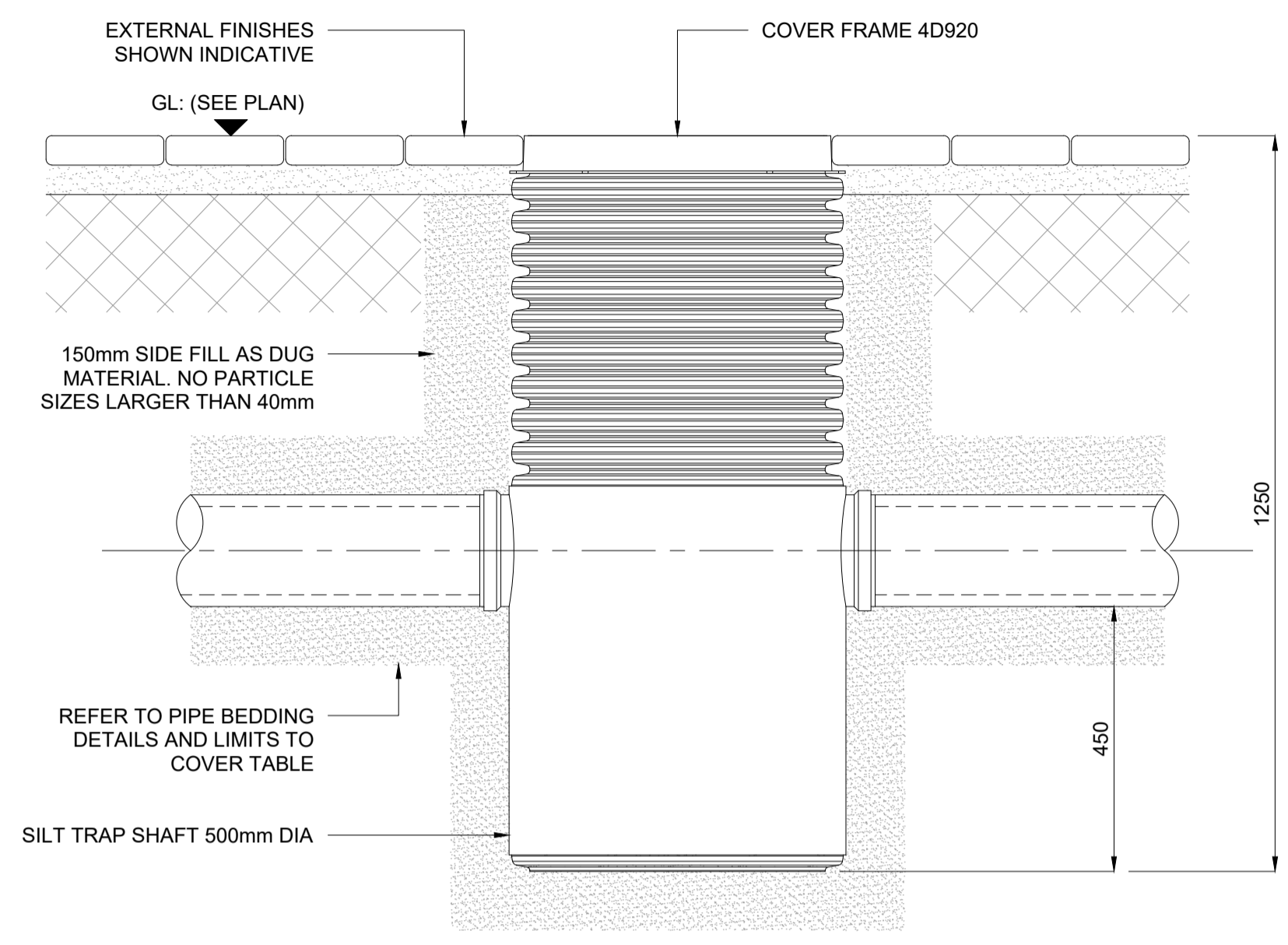
HYDROCK PROJECT NO. C-27280	SCALE @ A1 AS SHOWN	STATUS S2
STATUS DESCRIPTION SUITABLE FOR STAGE 3	REVISION P01	
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7102		



CONNECTIONS TO SEWER
SCALE 1:20

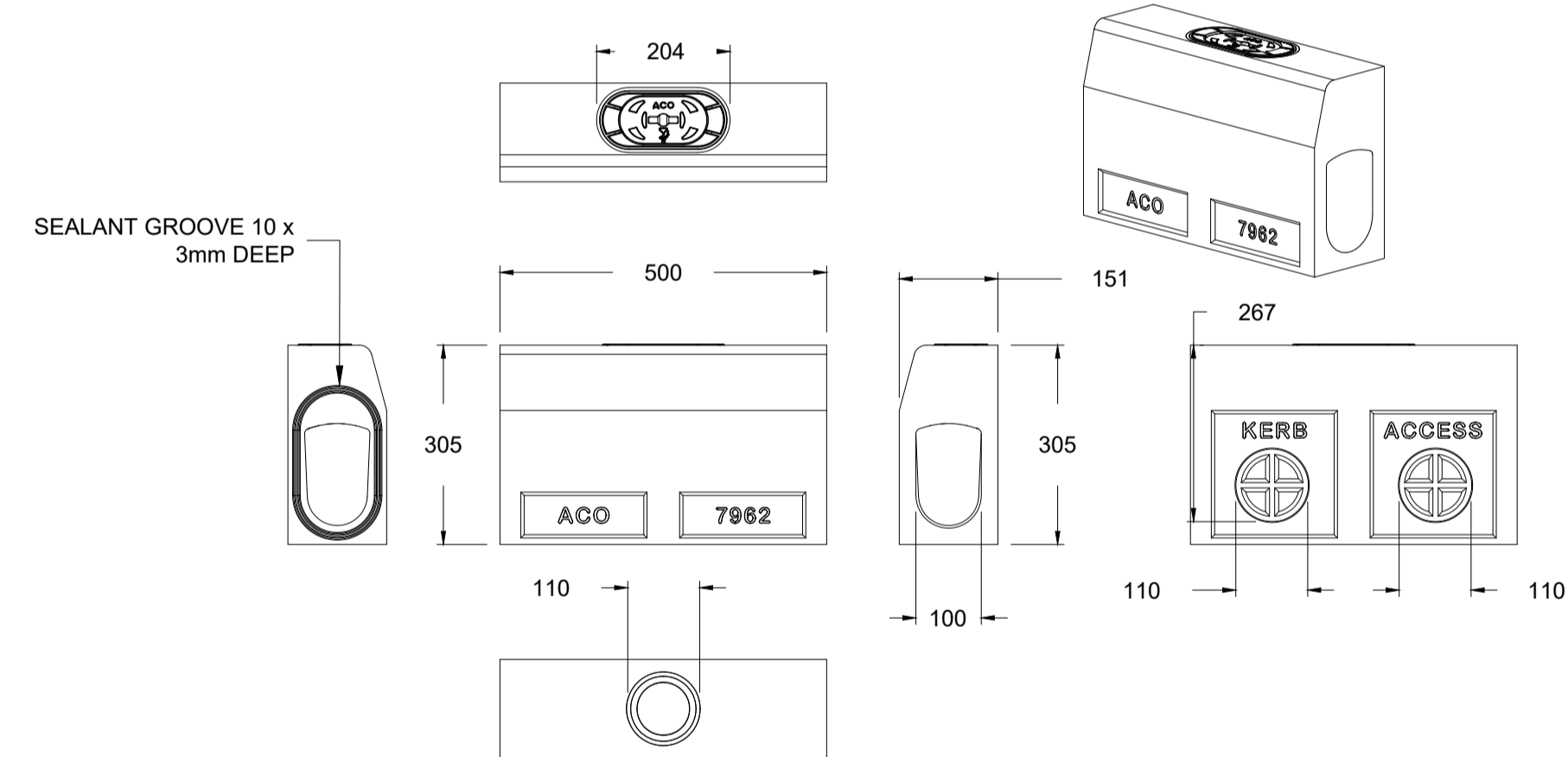


TYPICAL CATCHPIT DETAIL
SCALE 1:20
MAXIMUM DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3.0m

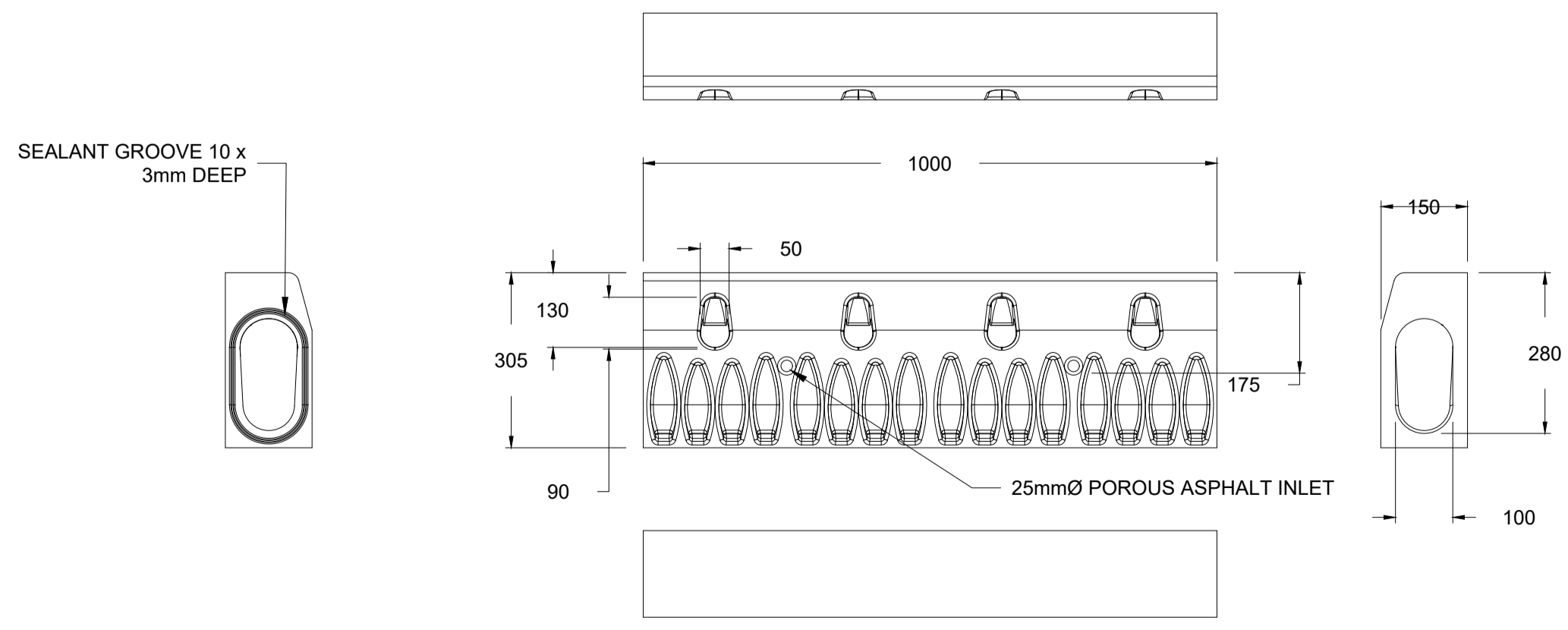


TYPICAL SILT TRAP DETAIL
SCALE 1:10

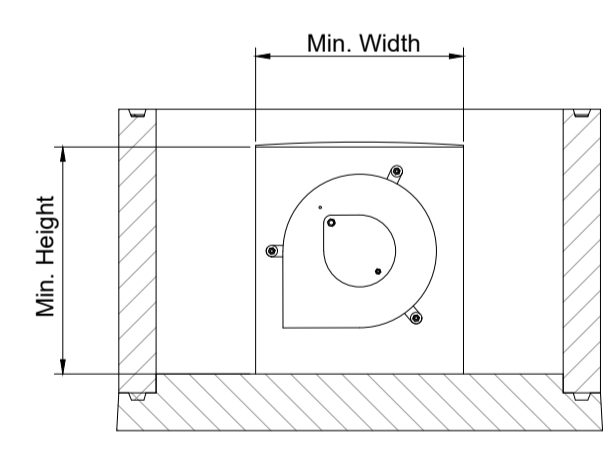
- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.



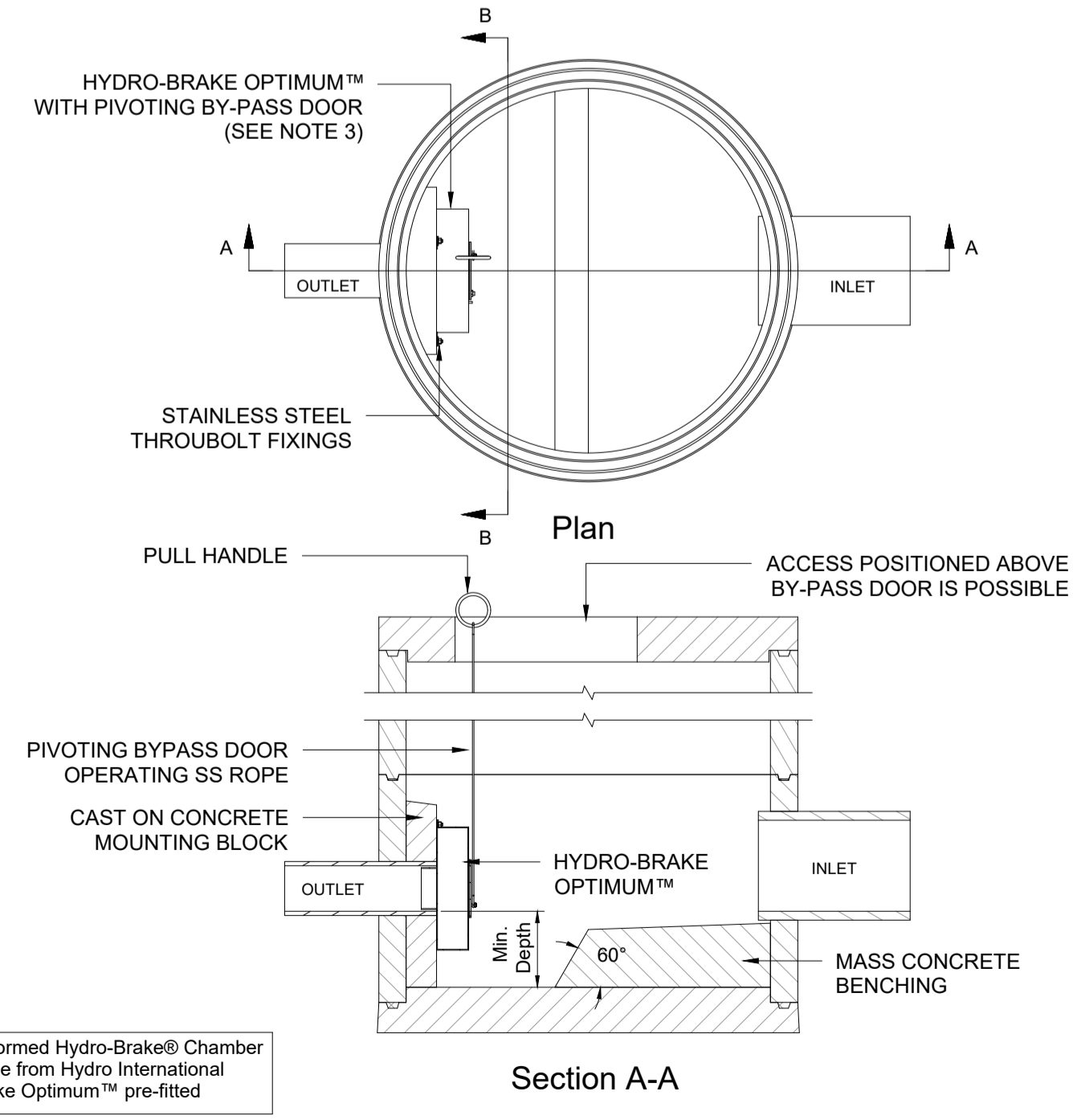
ACO KERB DRAIN HB305 ACCESS UNITS
SCALE 1:10



ACO KERB DRAIN HB305 1000mm CHANNEL
SCALE 1:10



Section B-B (View on mounting block)



TYPICAL HYDRO-BRAKE
SCALE 1:20

NOTE - A pre-formed Hydro-Brake® Chamber Base is available from Hydro International with Hydro-Brake Optimum™ pre-filled

P01	SUITABLE FOR STAGE 3				
J.MAGEE	03/11/23	J.MAGEE	03/11/23		

REV	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
DRAINAGE DETAILS SHEET 4

HYDROCK PROJECT NO.
C-27280-C
SCALE @ A1
AS SHOWN

STATUS DESCRIPTION SUITABLE FOR STAGE 3	STATUS S3
DRAWING NO. (PROJECT CODE-ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7103	REVISION P01



Appendix B – Surface Water Calculations

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Time Area Diagram for Storm at outfall S (pipe S1.013)

Time (mins)	Area (ha)	Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.888	4-8	1.788	8-12	0.127

Total Area Contributing (ha) = 2.803

Total Pipe Volume (m³) = 118.536

Time Area Diagram at outfall S (pipe S7.005)

Time (mins)	Area (ha)	Time (mins)	Area (ha)
0-4	0.564	4-8	0.240

Total Area Contributing (ha) = 0.804

Total Pipe Volume (m³) = 27.006

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

- Indicates pipe length does not match coordinates

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.000	26.762	0.310	86.3	0.253	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.001	19.792	0.070	282.7	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.002	4.622	0.020	231.1	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.003	40.616	0.160	253.8	0.153	0.00	0.0	0.600	o	600	Pipe/Conduit	
S2.000	33.172	0.260	127.6	0.309	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.004	52.528	0.210	250.1	0.154	0.00	0.0	0.600	o	600	Pipe/Conduit	
S3.000	34.380	0.170	202.2	0.308	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.005	55.234	0.220	251.1	0.155	0.00	0.0	0.600	o	600	Pipe/Conduit	
S4.000	33.686	0.120	280.7	0.309	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.006	55.145	0.220	250.7	0.155	0.00	0.0	0.600	o	600	Pipe/Conduit	
S5.000	33.700	0.130	259.2	0.302	5.00	0.0	0.600	o	300	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.000	50.00	5.26	73.900	0.253	0.0	0.0	0.0	1.69	119.7	34.3
S1.001	50.00	5.49	73.590	0.253	0.0	0.0	0.0	1.44	408.1	34.3
S1.002	50.00	5.54	73.520	0.253	0.0	0.0	0.0	1.60	451.7	34.3
S1.003	50.00	5.98	73.500	0.406	0.0	0.0	0.0	1.52	430.8	55.0
S2.000	50.00	5.40	73.900	0.309	0.0	0.0	0.0	1.39	98.3	41.8
S1.004	50.00	6.55	73.340	0.869	0.0	0.0	0.0	1.54	434.1	117.7
S3.000	50.00	5.52	73.600	0.308	0.0	0.0	0.0	1.10	77.9	41.7
S1.005	50.00	7.16	73.130	1.332	0.0	0.0	0.0	1.53	433.3	180.4
S4.000	50.00	5.60	73.330	0.309	0.0	0.0	0.0	0.93	66.0	41.8
S1.006	50.00	7.75	72.910	1.796	0.0	0.0	0.0	1.53	433.6	243.2
S5.000	50.00	5.58	73.120	0.302	0.0	0.0	0.0	0.97	68.7	40.8

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

STORM SEWER DESIGN by the Modified Rational Method

Network Design Table for Storm

PN	Length (m)	Fall (m)	Slope (1:X)	I.Area (ha)	T.E. (mins)	Base Flow (l/s)	k (mm)	HYD SECT	DIA (mm)	Section Type	Auto Design
S1.007	40.147	0.160	250.9	0.185	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.008	36.941	0.120	307.8	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S6.000	32.044	0.110	291.3	0.301	5.00	0.0	0.600	o	300	Pipe/Conduit	
S1.009	11.831	0.080	147.9	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.010	22.764	0.090	252.9	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.011	27.931	0.110	253.9	0.218	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.012	1.000#	0.030	33.3	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S1.013	2.249	0.040	56.2	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S7.000	45.566	0.150	303.8	0.348	5.00	0.0	0.600	o	300	Pipe/Conduit	
S7.001	20.001	0.060	333.4	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S7.002	23.728	0.080	296.6	0.000	0.00	0.0	0.600	o	600	Pipe/Conduit	
S7.003	35.714	0.120	297.6	0.391	0.00	0.0	0.600	o	600	Pipe/Conduit	
S7.004	1.000#	0.030	33.3	0.043	0.00	0.0	0.600	o	600	Pipe/Conduit	
S7.005	3.681	0.097	38.0	0.023	0.00	0.0	0.600	o	600	Pipe/Conduit	

Network Results Table

PN	Rain (mm/hr)	T.C. (mins)	US/IL (m)	Σ I.Area (ha)	Σ Base Flow (l/s)	Foul (l/s)	Add Flow (l/s)	Vel (m/s)	Cap (l/s)	Flow (l/s)
S1.007	50.00	8.19	72.690	2.283	0.0	0.0	0.0	1.53	433.4	309.1
S1.008	50.00	8.64	72.530	2.283	0.0	0.0	0.0	1.38	390.9	309.1
S6.000	50.00	5.58	72.820	0.301	0.0	0.0	0.0	0.92	64.8	40.8
S1.009	50.00	8.74	72.410	2.584	0.0	0.0	0.0	2.00	565.6	349.9
S1.010	50.00	8.98	72.330	2.584	0.0	0.0	0.0	1.53	431.6	349.9
S1.011	50.00	9.29	72.240	2.803	0.0	0.0	0.0	1.52	430.8	379.5
S1.012	50.00	9.29	72.130	2.803	0.0	0.0	0.0	4.23	1195.4	379.5
S1.013	50.00	9.30	72.100	2.803	0.0	0.0	0.0	3.25	919.5	379.5
S7.000	50.00	5.85	72.540	0.348	0.0	0.0	0.0	0.90	63.4	47.1
S7.001	50.00	6.10	72.390	0.348	0.0	0.0	0.0	1.33	375.5	47.1
S7.002	50.00	6.38	72.330	0.348	0.0	0.0	0.0	1.41	398.3	47.1
S7.003	50.00	6.80	72.250	0.739	0.0	0.0	0.0	1.41	397.6	100.0
S7.004	50.00	6.81	72.130	0.781	0.0	0.0	0.0	4.23	1195.4	105.8
S7.005	50.00	6.82	72.100	0.804	0.0	0.0	0.0	3.96	1119.3	108.9

.
.

.



Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by

Innovyze

Network 2020.1.3

Manhole Schedules for Storm

MH Name	MH CL (m)	MH Depth (m)	MH Connection	MH Diam., L*W (mm)	PN	Pipe Out Invert Level (m)	Pipe Out Diameter (mm)	PN	Pipes In Invert Level (m)	Pipes In Diameter (mm)	Backdrop (mm)
S1	76.370	2.470	Open Manhole	1200	S1.000	73.900	300				
S2	75.710	2.120	Open Manhole	1500	S1.001	73.590	600	S1.000	73.590	300	
S3	75.560	2.040	Open Manhole	1500	S1.002	73.520	600	S1.001	73.520	600	
S4	75.560	2.060	Open Manhole	1500	S1.003	73.500	600	S1.002	73.500	600	
S5	76.120	2.220	Open Manhole	1200	S2.000	73.900	300				
S5	75.050	1.710	Open Manhole	1500	S1.004	73.340	600	S1.003	73.340	600	
								S2.000	73.640	300	
S7	75.690	2.090	Open Manhole	1200	S3.000	73.600	300				
S6	74.760	1.630	Open Manhole	1500	S1.005	73.130	600	S1.004	73.130	600	
								S3.000	73.430	300	
S9	75.170	1.840	Open Manhole	1200	S4.000	73.330	300				
S7	74.500	1.590	Open Manhole	1500	S1.006	72.910	600	S1.005	72.910	600	
								S4.000	73.210	300	
S11	74.660	1.540	Open Manhole	1200	S5.000	73.120	300				
S8	73.900	1.210	Open Manhole	1500	S1.007	72.690	600	S1.006	72.690	600	
								S5.000	72.990	300	
S9	73.740	1.210	Open Manhole	1500	S1.008	72.530	600	S1.007	72.530	600	
S14	74.120	1.300	Open Manhole	1200	S6.000	72.820	300				
S10	73.610	1.200	Open Manhole	1500	S1.009	72.410	600	S1.008	72.410	600	
								S6.000	72.710	300	
S11	73.550	1.220	Open Manhole	1500	S1.010	72.330	600	S1.009	72.330	600	
S12	73.460	1.220	Open Manhole	1500	S1.011	72.240	600	S1.010	72.240	600	
S13	73.340	1.210	Open Manhole	1500	S1.012	72.130	600	S1.011	72.130	600	
S14	73.500	1.400	Open Manhole	1500	S1.013	72.100	600	S1.012	72.100	600	
S	73.500	1.440	Open Manhole	0		OUTFALL		S1.013	72.060	600	
S20	73.870	1.330	Open Manhole	1200	S7.000	72.540	300				
S21	73.300	0.910	Open Manhole	1500	S7.001	72.390	600	S7.000	72.390	300	
S22	73.230	0.900	Open Manhole	1500	S7.002	72.330	600	S7.001	72.330	600	
S23	73.460	1.210	Open Manhole	1500	S7.003	72.250	600	S7.002	72.250	600	
S24	73.350	1.220	Open Manhole	1500	S7.004	72.130	600	S7.003	72.130	600	
S25	73.500	1.400	Open Manhole	1500	S7.005	72.100	600	S7.004	72.100	600	
S	73.500	1.497	Open Manhole	0		OUTFALL		S7.005	72.003	600	

.
.

.

Date 29/11/2023 11:23
File Drawnet.MDX

Designed by jasonmagee
Checked by



Innovyze

Network 2020.1.3

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S1	459497.506	224028.487	459497.506	224028.487	Required	
S2	459486.027	224004.311	459486.027	224004.311	Required	
S3	459504.019	223996.065	459504.019	223996.065	Required	
S4	459502.449	223991.717	459502.449	223991.717	Required	
S5	459554.175	224007.630	459554.175	224007.630	Required	
S5	459540.466	223977.422	459540.466	223977.422	Required	
S7	459605.518	223980.251	459605.518	223980.251	Required	
S6	459586.293	223951.750	459586.293	223951.750	Required	
S9	459653.582	223943.213	459653.582	223943.213	Required	
S7	459630.518	223918.661	459630.518	223918.661	Required	
S11	459694.167	223899.469	459694.167	223899.469	Required	
S8	459668.010	223878.221	459668.010	223878.221	Required	
S9	459692.857	223846.686	459692.857	223846.686	Required	
S14	459738.918	223845.701	459738.918	223845.701	Required	
S10	459719.006	223820.593	459719.006	223820.593	Required	

.
.

.

Date 29/11/2023 11:23
File Drawnet.MDX

Designed by jasonmagee
Checked by



Innovyze Network 2020.1.3

Manhole Schedules for Storm

MH Name	Manhole Easting (m)	Manhole Northing (m)	Intersection Easting (m)	Intersection Northing (m)	Manhole Access	Layout (North)
S11	459728.289	223813.258	459728.289	223813.258	Required	
S12	459748.001	223801.873	459748.001	223801.873	Required	
S13	459774.163	223792.093	459774.163	223792.093	Required	
S14	459766.867	223766.074	459766.867	223766.074	Required	
S	459765.356	223764.408			No Entry	
S20	459864.638	223822.851	459864.638	223822.851	Required	
S21	459880.782	223780.241	459880.782	223780.241	Required	
S22	459861.714	223774.205	459861.714	223774.205	Required	
S23	459838.331	223770.176	459838.331	223770.176	Required	
S24	459802.617	223770.324	459802.617	223770.324	Required	
S25	459800.721	223736.442	459800.721	223736.442	Required	
S	459798.300	223733.669			No Entry	

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

PIPELINE SCHEDULES for Storm

Upstream Manhole

- Indicates pipe length does not match coordinates

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
S1.000	o	300	S1	76.370	73.900	2.170	Open Manhole		1200
S1.001	o	600	S2	75.710	73.590	1.520	Open Manhole		1500
S1.002	o	600	S3	75.560	73.520	1.440	Open Manhole		1500
S1.003	o	600	S4	75.560	73.500	1.460	Open Manhole		1500
S2.000	o	300	S5	76.120	73.900	1.920	Open Manhole		1200
S1.004	o	600	S5	75.050	73.340	1.110	Open Manhole		1500
S3.000	o	300	S7	75.690	73.600	1.790	Open Manhole		1200
S1.005	o	600	S6	74.760	73.130	1.030	Open Manhole		1500
S4.000	o	300	S9	75.170	73.330	1.540	Open Manhole		1200
S1.006	o	600	S7	74.500	72.910	0.990	Open Manhole		1500
S5.000	o	300	S11	74.660	73.120	1.240	Open Manhole		1200

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., (mm)	L*W
S1.000	26.762	86.3	S2	75.710	73.590	1.820	Open Manhole		1500
S1.001	19.792	282.7	S3	75.560	73.520	1.440	Open Manhole		1500
S1.002	4.622	231.1	S4	75.560	73.500	1.460	Open Manhole		1500
S1.003	40.616	253.8	S5	75.050	73.340	1.110	Open Manhole		1500
S2.000	33.172	127.6	S5	75.050	73.640	1.110	Open Manhole		1500
S1.004	52.528	250.1	S6	74.760	73.130	1.030	Open Manhole		1500
S3.000	34.380	202.2	S6	74.760	73.430	1.030	Open Manhole		1500
S1.005	55.234	251.1	S7	74.500	72.910	0.990	Open Manhole		1500
S4.000	33.686	280.7	S7	74.500	73.210	0.990	Open Manhole		1500
S1.006	55.145	250.7	S8	73.900	72.690	0.610	Open Manhole		1500
S5.000	33.700	259.2	S8	73.900	72.990	0.610	Open Manhole		1500

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

PIPELINE SCHEDULES for Storm

Upstream Manhole

PN	Hyd Sect	Diam (mm)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.007	o	600	S8	73.900	72.690	0.610	Open Manhole	1500
S1.008	o	600	S9	73.740	72.530	0.610	Open Manhole	1500
S6.000	o	300	S14	74.120	72.820	1.000	Open Manhole	1200
S1.009	o	600	S10	73.610	72.410	0.600	Open Manhole	1500
S1.010	o	600	S11	73.550	72.330	0.620	Open Manhole	1500
S1.011	o	600	S12	73.460	72.240	0.620	Open Manhole	1500
S1.012	o	600	S13	73.340	72.130	0.610	Open Manhole	1500
S1.013	o	600	S14	73.500	72.100	0.800	Open Manhole	1500
S7.000	o	300	S20	73.870	72.540	1.030	Open Manhole	1200
S7.001	o	600	S21	73.300	72.390	0.310	Open Manhole	1500
S7.002	o	600	S22	73.230	72.330	0.300	Open Manhole	1500
S7.003	o	600	S23	73.460	72.250	0.610	Open Manhole	1500
S7.004	o	600	S24	73.350	72.130	0.620	Open Manhole	1500
S7.005	o	600	S25	73.500	72.100	0.800	Open Manhole	1500

Downstream Manhole

PN	Length (m)	Slope (1:X)	MH Name	C.Level (m)	I.Level (m)	D.Depth (m)	MH Connection	MH DIAM., L*W (mm)
S1.007	40.147	250.9	S9	73.740	72.530	0.610	Open Manhole	1500
S1.008	36.941	307.8	S10	73.610	72.410	0.600	Open Manhole	1500
S6.000	32.044	291.3	S10	73.610	72.710	0.600	Open Manhole	1500
S1.009	11.831	147.9	S11	73.550	72.330	0.620	Open Manhole	1500
S1.010	22.764	252.9	S12	73.460	72.240	0.620	Open Manhole	1500
S1.011	27.931	253.9	S13	73.340	72.130	0.610	Open Manhole	1500
S1.012	1.000#	33.3	S14	73.500	72.100	0.800	Open Manhole	1500
S1.013	2.249	56.2	S	73.500	72.060	0.840	Open Manhole	0
S7.000	45.566	303.8	S21	73.300	72.390	0.610	Open Manhole	1500
S7.001	20.001	333.4	S22	73.230	72.330	0.300	Open Manhole	1500
S7.002	23.728	296.6	S23	73.460	72.250	0.610	Open Manhole	1500
S7.003	35.714	297.6	S24	73.350	72.130	0.620	Open Manhole	1500
S7.004	1.000#	33.3	S25	73.500	72.100	0.800	Open Manhole	1500
S7.005	3.681	38.0	S	73.500	72.003	0.897	Open Manhole	0

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Area Summary for Storm

Pipe Number	PIMP Type	PIMP Name	PIMP (%)	Gross Area (ha)	Imp. Area (ha)	Pipe Total (ha)
1.000	User	-	100	0.253	0.253	0.253
1.001	-	-	100	0.000	0.000	0.000
1.002	-	-	100	0.000	0.000	0.000
1.003	User	-	100	0.153	0.153	0.153
2.000	User	-	100	0.309	0.309	0.309
1.004	User	-	100	0.154	0.154	0.154
3.000	User	-	100	0.308	0.308	0.308
1.005	User	-	100	0.155	0.155	0.155
4.000	User	-	100	0.309	0.309	0.309
1.006	User	-	100	0.155	0.155	0.155
5.000	User	-	100	0.302	0.302	0.302
1.007	User	-	100	0.185	0.185	0.185
1.008	-	-	100	0.000	0.000	0.000
6.000	User	-	100	0.301	0.301	0.301
1.009	-	-	100	0.000	0.000	0.000
1.010	-	-	100	0.000	0.000	0.000
1.011	User	-	100	0.218	0.218	0.218
1.012	-	-	100	0.000	0.000	0.000
1.013	-	-	100	0.000	0.000	0.000
7.000	User	-	100	0.330	0.330	0.330
	User	-	100	0.017	0.017	0.348
7.001	-	-	100	0.000	0.000	0.000
7.002	-	-	100	0.000	0.000	0.000
7.003	User	-	100	0.391	0.391	0.391
7.004	User	-	100	0.043	0.043	0.043
7.005	User	-	100	0.023	0.023	0.023
				Total	Total	Total
				3.606	3.606	3.606

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Network Classifications for Storm

PN	USMH Name	Pipe Dia (mm)	Min Cover Depth (m)	Max Cover Depth (m)	Pipe Type	MH Dia (mm)	MH Width (mm)	MH Ring Depth (m)	MH Type
S1.000	S1	300	1.820	2.170	Unclassified	1200	0	2.170	Unclassified
S1.001	S2	600	1.440	1.520	Unclassified	1500	0	1.520	Unclassified
S1.002	S3	600	1.440	1.460	Unclassified	1500	0	1.440	Unclassified
S1.003	S4	600	1.110	1.460	Unclassified	1500	0	1.460	Unclassified
S2.000	S5	300	1.110	1.920	Unclassified	1200	0	1.920	Unclassified
S1.004	S5	600	1.030	1.110	Unclassified	1500	0	1.110	Unclassified
S3.000	S7	300	1.030	1.790	Unclassified	1200	0	1.790	Unclassified
S1.005	S6	600	0.990	1.030	Unclassified	1500	0	1.030	Unclassified
S4.000	S9	300	0.990	1.540	Unclassified	1200	0	1.540	Unclassified
S1.006	S7	600	0.610	0.990	Unclassified	1500	0	0.990	Unclassified
S5.000	S11	300	0.610	1.240	Unclassified	1200	0	1.240	Unclassified
S1.007	S8	600	0.610	0.610	Unclassified	1500	0	0.610	Unclassified
S1.008	S9	600	0.600	0.610	Unclassified	1500	0	0.610	Unclassified
S6.000	S14	300	0.600	1.000	Unclassified	1200	0	1.000	Unclassified
S1.009	S10	600	0.600	0.620	Unclassified	1500	0	0.600	Unclassified
S1.010	S11	600	0.620	0.620	Unclassified	1500	0	0.620	Unclassified
S1.011	S12	600	0.610	0.620	Unclassified	1500	0	0.620	Unclassified
S1.012	S13	600	0.610	0.800	Unclassified	1500	0	0.610	Unclassified
S1.013	S14	600	0.800	0.840	Unclassified	1500	0	0.800	Unclassified
S7.000	S20	300	0.610	1.030	Unclassified	1200	0	1.030	Unclassified
S7.001	S21	600	0.300	0.310	Unclassified	1500	0	0.310	Unclassified
S7.002	S22	600	0.300	0.610	Unclassified	1500	0	0.300	Unclassified
S7.003	S23	600	0.610	0.620	Unclassified	1500	0	0.610	Unclassified
S7.004	S24	600	0.620	0.800	Unclassified	1500	0	0.620	Unclassified
S7.005	S25	600	0.800	0.897	Unclassified	1500	0	0.800	Unclassified

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	-----------	--------

S1.013	S	73.500	72.060	72.060	0	0
--------	---	--------	--------	--------	---	---

Free Flowing Outfall Details for Storm

Outfall Pipe Number	Outfall Name	C. Level (m)	I. Level (m)	Min I. Level (m)	D, L (mm)	W (mm)
---------------------	--------------	--------------	--------------	------------------	-----------	--------

S7.005	S	73.500	72.003	72.000	0	0
--------	---	--------	--------	--------	---	---

. . .		
-------------	--	---

Date 29/11/2023 11:23	Designed by jasonmagee	
File Drawnet.MDX	Checked by	

Innovyze	Network 2020.1.3
----------	------------------

Simulation Criteria for Storm

Volumetric Runoff Coeff	0.750	Additional Flow - % of Total Flow	0.000
Areal Reduction Factor	1.000	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start (mins)	0	Inlet Coefficient	0.800
Hot Start Level (mm)	0	Flow per Person per Day (l/per/day)	0.000
Manhole Headloss Coeff (Global)	0.500	Run Time (mins)	60
Foul Sewage per hectare (l/s)	0.000	Output Interval (mins)	1

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Profile Type	Summer
Return Period (years)	100	Cv (Summer)	0.750
Region	England and Wales	Cv (Winter)	0.840
M5-60 (mm)	20.000	Storm Duration (mins)	30
Ratio R	0.409		

.
.

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Online Controls for Storm

Hydro-Brake® Optimum Manhole: S6, DS/PN: S1.005, Volume (m³): 19.6

Unit Reference	MD-SHE-0124-7000-0970-7000
Design Head (m)	0.970
Design Flow (l/s)	7.0
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	124
Invert Level (m)	73.130
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	0.970	7.0
Flush-Flo™	0.293	7.0
Kick-Flo®	0.643	5.8
Mean Flow over Head Range	-	6.0

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.4	1.200	7.7	3.000	11.9	7.000	17.8
0.200	6.8	1.400	8.3	3.500	12.8	7.500	18.4
0.300	7.0	1.600	8.8	4.000	13.6	8.000	19.0
0.400	6.9	1.800	9.3	4.500	14.4	8.500	19.6
0.500	6.7	2.000	9.8	5.000	15.2	9.000	20.1
0.600	6.2	2.200	10.3	5.500	15.9	9.500	20.6
0.800	6.4	2.400	10.7	6.000	16.5		
1.000	7.1	2.600	11.1	6.500	17.2		

Hydro-Brake® Optimum Manhole: S14, DS/PN: S1.013, Volume (m³): 2.3

Unit Reference	MD-SHE-0151-1080-1000-1080
Design Head (m)	1.000
Design Flow (l/s)	10.8
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	151
Invert Level (m)	72.100
Minimum Outlet Pipe Diameter (mm)	225
Suggested Manhole Diameter (mm)	1200

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Hydro-Brake® Optimum Manhole: S14, DS/PN: S1.013, Volume (m³): 2.3

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	10.8
Flush-Flo™	0.309	10.8
Kick-Flo®	0.682	9.0
Mean Flow over Head Range	-	9.2

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	5.4	1.200	11.7	3.000	18.1	7.000	27.3
0.200	10.4	1.400	12.6	3.500	19.5	7.500	28.2
0.300	10.8	1.600	13.5	4.000	20.8	8.000	29.1
0.400	10.7	1.800	14.2	4.500	22.0	8.500	29.9
0.500	10.4	2.000	15.0	5.000	23.2	9.000	30.8
0.600	9.9	2.200	15.7	5.500	24.3	9.500	31.6
0.800	9.7	2.400	16.3	6.000	25.3		
1.000	10.8	2.600	16.9	6.500	26.3		

Hydro-Brake® Optimum Manhole: S25, DS/PN: S7.005, Volume (m³): 2.3

Unit Reference	MD-SHE-0084-3100-1000-3100
Design Head (m)	1.000
Design Flow (l/s)	3.1
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	84
Invert Level (m)	72.100
Minimum Outlet Pipe Diameter (mm)	100
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	3.1
Flush-Flo™	0.297	3.1
Kick-Flo®	0.623	2.5
Mean Flow over Head Range	-	2.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	2.5	0.300	3.1	0.500	2.9	0.800	2.8
0.200	3.0	0.400	3.0	0.600	2.6	1.000	3.1

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Hydro-Brake® Optimum Manhole: S25, DS/PN: S7.005, Volume (m³): 2.3

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
1.200	3.4	2.400	4.6	5.000	6.6	8.000	8.2
1.400	3.6	2.600	4.8	5.500	6.9	8.500	8.4
1.600	3.8	3.000	5.2	6.000	7.1	9.000	8.7
1.800	4.1	3.500	5.5	6.500	7.4	9.500	8.9
2.000	4.3	4.000	5.9	7.000	7.7		
2.200	4.5	4.500	6.2	7.500	7.9		

.

Date 29/11/2023 11:23

File Drawnet.MDX

Designed by jasonmagee

Checked by



Innovyze

Network 2020.1.3

Storage Structures for Storm

Cellular Storage Manhole: S1, DS/PN: S1.000

Invert Level (m) 75.870 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Cellular Storage Manhole: S5, DS/PN: S2.000

Invert Level (m) 75.620 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Cellular Storage Manhole: S7, DS/PN: S3.000

Invert Level (m) 75.190 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Complex Manhole: S6, DS/PN: S1.005

Tank or Pond

Invert Level (m) 73.460

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	659.0	1.300	1217.2

Porous Car Park

Infiltration Coefficient Base (m/hr) 0.00000 Safety Factor 2.0
 Membrane Percolation (mm/hr) 1000 Porosity 0.30
 Max Percolation (1/s) 1000.0 Invert Level (m) 74.285

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Porous Car Park

Width (m) 180.0 Depression Storage (mm) 5
 Length (m) 20.0 Evaporation (mm/day) 3
 Slope (1:X) 40.0 Membrane Depth (mm) 0

Cellular Storage Manhole: S9, DS/PN: S4.000

Invert Level (m) 74.670 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Cellular Storage Manhole: S11, DS/PN: S5.000

Invert Level (m) 74.160 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Cellular Storage Manhole: S14, DS/PN: S6.000

Invert Level (m) 73.620 Safety Factor 2.0
 Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.30
 Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Complex Manhole: S14, DS/PN: S1.013

Tank or Pond

Invert Level (m) 72.100

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	928.0	1.300	1396.9

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	20.0
Membrane Percolation (mm/hr)	1000	Length (m)	260.0
Max Percolation (l/s)	1444.4	Slope (1:X)	40.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	72.925	Membrane Depth (mm)	0

Cellular Storage Manhole: S20, DS/PN: S7.000

Invert Level (m)	73.370	Safety Factor	2.0
Infiltration Coefficient Base (m/hr)	0.00000	Porosity	0.30
Infiltration Coefficient Side (m/hr)	0.00000		

Depth (m)	Area (m ²)	Inf. Area (m ²)	Depth (m)	Area (m ²)	Inf. Area (m ²)
0.000	850.0	0.0	0.301	0.0	0.0
0.300	850.0	0.0			

Complex Manhole: S25, DS/PN: S7.005


Tank or Pond

Invert Level (m) 72.100

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	440.0	1.300	777.8

Porous Car Park

Infiltration Coefficient Base (m/hr)	0.00000	Width (m)	32.0
Membrane Percolation (mm/hr)	1000	Length (m)	85.0
Max Percolation (l/s)	755.6	Slope (1:X)	40.0
Safety Factor	2.0	Depression Storage (mm)	5
Porosity	0.30	Evaporation (mm/day)	3
Invert Level (m)	72.925	Membrane Depth (mm)	0

. . .	Designed by jasonmagee Checked by	
Date 29/11/2023 11:23 File Drawnet.MDX		

Innovyze Network 2020.1.3

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

Simulation Criteria

Areal Reduction Factor	1.000	Additional Flow - % of Total Flow	0.000
Hot Start (mins)	0	MADD Factor * 10m ³ /ha Storage	2.000
Hot Start Level (mm)	0	Inlet Coefficient	0.800
Manhole Headloss Coeff (Global)	0.500	Flow per Person per Day (l/per/day)	0.000
Foul Sewage per hectare (l/s)	0.000		

Number of Input Hydrographs	0	Number of Storage Structures	10
Number of Online Controls	3	Number of Time/Area Diagrams	0
Number of Offline Controls	0	Number of Real Time Controls	0

Synthetic Rainfall Details

Rainfall Model	FSR	Ratio R	0.400
Region	England and Wales	Cv (Summer)	0.750
M5-60 (mm)	20.000	Cv (Winter)	0.840

Margin for Flood Risk Warning (mm)	300.0	DVD Status	OFF
Analysis Timestep	Fine	Inertia Status	OFF
DTS Status	ON		

Profile(s)

	Summer and Winter
Duration(s) (mins)	15, 30, 60, 120, 180, 240, 360, 480, 600, 720, 960, 1440, 2160, 2880, 4320, 5760, 7200, 8640, 10080
Return Period(s) (years)	2, 30, 100
Climate Change (%)	0, 0, 40

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	2	+0%	100/15 Summer			
S1.001	S2	15 Winter	2	+0%	100/120 Winter			
S1.002	S3	15 Winter	2	+0%	100/60 Winter			
S1.003	S4	15 Winter	2	+0%	100/60 Winter			
S2.000	S5	15 Winter	2	+0%	30/15 Summer			
S1.004	S5	180 Winter	2	+0%	100/15 Summer			
S3.000	S7	15 Winter	2	+0%	30/15 Summer			
S1.005	S6	180 Winter	2	+0%	30/30 Winter			
S4.000	S9	15 Winter	2	+0%	30/15 Summer			
S1.006	S7	15 Winter	2	+0%	100/15 Summer			
S5.000	S11	15 Winter	2	+0%	30/15 Summer			
S1.007	S8	15 Winter	2	+0%	100/15 Summer	100/15 Winter		
S1.008	S9	15 Winter	2	+0%	100/15 Summer	100/15 Winter		
S6.000	S14	15 Winter	2	+0%	30/15 Summer			
S1.009	S10	15 Winter	2	+0%	30/15 Winter			
S1.010	S11	15 Winter	2	+0%	30/15 Winter			
S1.011	S12	15 Winter	2	+0%	30/15 Winter			
S1.012	S13	15 Winter	2	+0%	30/15 Winter			
S1.013	S14	960 Winter	2	+0%	100/60 Winter			

.
.

.



Date 29/11/2023 11:23
File Drawnet.MDX

Designed by jasonmagee
Checked by

Innovyze Network 2020.1.3

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Water	Surcharged	Flooded	Half Drain		Pipe	Status	Level Exceeded
		Level (m)	Depth (m)	Volume (m ³)	Flow / Overflow Cap. (l/s)	Time (mins)	Flow (l/s)		
S1.000	S1	74.037	-0.163	0.000	0.42	6	45.1	OK	
S1.001	S2	73.755	-0.435	0.000	0.15		44.9	OK	
S1.002	S3	73.707	-0.413	0.000	0.20		44.5	OK	
S1.003	S4	73.693	-0.407	0.000	0.18		65.7	OK	
S2.000	S5	74.072	-0.128	0.000	0.61	6	54.8	OK	
S1.004	S5	73.663	-0.277	0.000	0.09		36.0	OK	
S3.000	S7	73.801	-0.099	0.000	0.76	6	54.3	OK	
S1.005	S6	73.662	-0.068	0.000	0.02		7.0	OK	
S4.000	S9	73.557	-0.073	0.000	0.92	6	55.5	OK	
S1.006	S7	73.101	-0.409	0.000	0.22		83.4	OK	
S5.000	S11	73.337	-0.083	0.000	0.86	6	54.2	OK	
S1.007	S8	72.968	-0.322	0.000	0.43		160.0	OK	1
S1.008	S9	72.840	-0.290	0.000	0.47		156.1	OK	1
S6.000	S14	73.046	-0.074	0.000	0.91	6	54.1	OK	
S1.009	S10	72.737	-0.273	0.000	0.58		199.6	OK	
S1.010	S11	72.669	-0.261	0.000	0.59		196.7	OK	
S1.011	S12	72.598	-0.242	0.000	0.63		219.3	OK	
S1.012	S13	72.515	-0.215	0.000	0.73		217.8	OK	
S1.013	S14	72.442	-0.258	0.000	0.03	592	10.8	OK	

.

Date 29/11/2023 11:23

File Drawnet.MDX

Designed by jasonmagee

Checked by



Innovyze

Network 2020.1.3

2 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S7.000	S20	15	Winter	2	+0%	30/15	Summer		72.812
S7.001	S21	15	Winter	2	+0%	100/480	Winter		72.585
S7.002	S22	15	Winter	2	+0%	100/240	Winter		72.535
S7.003	S23	15	Winter	2	+0%	100/15	Winter		72.493
S7.004	S24	15	Winter	2	+0%	100/15	Winter		72.385
S7.005	S25	480	Winter	2	+0%	100/60	Winter		72.370

PN	US/MH Name	Surcharged Flooded			Half Drain Pipe		Level Exceeded
		Depth (m)	Volume (m ³)	Flow / Overflow Cap. (l/s)	Time (mins)	Pipe Flow (l/s)	
S7.000	S20	-0.028	0.000	0.98	5	58.5	OK
S7.001	S21	-0.405	0.000	0.20		57.8	OK
S7.002	S22	-0.395	0.000	0.19		57.5	OK
S7.003	S23	-0.357	0.000	0.32		106.9	OK
S7.004	S24	-0.345	0.000	0.38		112.5	OK
S7.005	S25	-0.330	0.000	0.01	456	3.1	OK

.
.

.

Date 29/11/2023 11:23
File Drawnet.MDX

Designed by jasonmagee
Checked by



Innovyze Network 2020.1.3

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 10
 Number of Online Controls 3 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.400
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
 720, 960, 1440, 2160, 2880, 4320, 5760,
 7200, 8640, 10080
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	30	+0%	100/15 Summer			
S1.001	S2	360 Winter	30	+0%	100/120 Winter			
S1.002	S3	360 Winter	30	+0%	100/60 Winter			
S1.003	S4	360 Winter	30	+0%	100/60 Winter			
S2.000	S5	15 Winter	30	+0%	30/15 Summer			
S1.004	S5	360 Winter	30	+0%	100/15 Summer			
S3.000	S7	15 Winter	30	+0%	30/15 Summer			
S1.005	S6	360 Winter	30	+0%	30/30 Winter			
S4.000	S9	15 Winter	30	+0%	30/15 Summer			
S1.006	S7	15 Winter	30	+0%	100/15 Summer			
S5.000	S11	15 Winter	30	+0%	30/15 Summer			
S1.007	S8	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
S1.008	S9	15 Winter	30	+0%	100/15 Summer	100/15 Winter		
S6.000	S14	15 Winter	30	+0%	30/15 Summer			
S1.009	S10	15 Winter	30	+0%	30/15 Winter			
S1.010	S11	15 Winter	30	+0%	30/15 Winter			

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Pipe		Status
						Time (mins)	Flow (l/s)	
S1.000	S1	74.106	-0.094	0.000	0.80	6	85.6	OK
S1.001	S2	73.923	-0.267	0.000	0.04		11.7	OK
S1.002	S3	73.923	-0.197	0.000	0.05		11.2	OK
S1.003	S4	73.923	-0.177	0.000	0.05		18.0	OK
S2.000	S5	74.283	0.083	0.000	1.15	4	103.5	SURCHARGED
S1.004	S5	73.923	-0.017	0.000	0.10		38.0	OK
S3.000	S7	74.082	0.182	0.000	1.43	4	102.4	SURCHARGED
S1.005	S6	73.922	0.192	0.000	0.02		7.0	SURCHARGED
S4.000	S9	73.857	0.227	0.000	1.72	5	103.9	SURCHARGED
S1.006	S7	73.207	-0.303	0.000	0.39		149.5	OK
S5.000	S11	73.617	0.197	0.000	1.58	5	99.6	SURCHARGED
S1.007	S8	73.144	-0.146	0.000	0.77		284.5	OK
S1.008	S9	73.081	-0.049	0.000	0.78		257.0	OK
S6.000	S14	73.320	0.200	0.000	1.67	5	99.1	SURCHARGED
S1.009	S10	73.016	0.006	0.000	0.94		326.1	SURCHARGED
S1.010	S11	72.961	0.031	0.000	0.97		322.9	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.000	S1	
S1.001	S2	
S1.002	S3	
S1.003	S4	
S2.000	S5	
S1.004	S5	
S3.000	S7	
S1.005	S6	
S4.000	S9	
S1.006	S7	
S5.000	S11	
S1.007	S8	1
S1.008	S9	1
S6.000	S14	
S1.009	S10	
S1.010	S11	

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

30 year Return Period Summary of Critical Results by Maximum Level (Rank 1)
for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.	Water Level (m)
S1.011	S12	15 Winter	30	+0%	30/15 Winter				72.881
S1.012	S13	15 Winter	30	+0%	30/15 Winter				72.759
S1.013	S14	960 Winter	30	+0%	100/60 Winter				72.684
S7.000	S20	15 Winter	30	+0%	30/15 Summer				73.224
S7.001	S21	15 Winter	30	+0%	100/480 Winter				72.686
S7.002	S22	15 Winter	30	+0%	100/240 Winter				72.646
S7.003	S23	15 Winter	30	+0%	100/15 Winter				72.618
S7.004	S24	600 Winter	30	+0%	100/15 Winter				72.609
S7.005	S25	600 Winter	30	+0%	100/60 Winter				72.609

PN	US/MH Name	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Half Drain Time (mins)	Pipe Flow (l/s)	Status	Level Exceeded
S1.011	S12	0.041	0.000	1.01			349.8	SURCHARGED	
S1.012	S13	0.029	0.000	1.17			347.1	SURCHARGED	
S1.013	S14	-0.016	0.000	0.03			10.8	OK	
S7.000	S20	0.384	0.000	1.83			4 108.8	SURCHARGED	
S7.001	S21	-0.304	0.000	0.38			108.2	OK	
S7.002	S22	-0.284	0.000	0.36			111.6	OK	
S7.003	S23	-0.232	0.000	0.62			205.4	OK	
S7.004	S24	-0.121	0.000	0.08			23.2	OK	
S7.005	S25	-0.091	0.000	0.01			3.1	OK	

.
.

.



Date 29/11/2023 11:23
File Drawnet.MDX

Designed by jasonmagee
Checked by

Innovyze

Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

Simulation Criteria

Areal Reduction Factor 1.000 Additional Flow - % of Total Flow 0.000
 Hot Start (mins) 0 MADD Factor * 10m³/ha Storage 2.000
 Hot Start Level (mm) 0 Inlet Coefficient 0.800
 Manhole Headloss Coeff (Global) 0.500 Flow per Person per Day (l/per/day) 0.000
 Foul Sewage per hectare (l/s) 0.000

Number of Input Hydrographs 0 Number of Storage Structures 10
 Number of Online Controls 3 Number of Time/Area Diagrams 0
 Number of Offline Controls 0 Number of Real Time Controls 0

Synthetic Rainfall Details

Rainfall Model FSR Ratio R 0.400
 Region England and Wales Cv (Summer) 0.750
 M5-60 (mm) 20.000 Cv (Winter) 0.840

Margin for Flood Risk Warning (mm) 300.0 DVD Status OFF
 Analysis Timestep Fine Inertia Status OFF
 DTS Status ON

Profile(s) Summer and Winter
 Duration(s) (mins) 15, 30, 60, 120, 180, 240, 360, 480, 600,
 720, 960, 1440, 2160, 2880, 4320, 5760,
 7200, 8640, 10080
 Return Period(s) (years) 2, 30, 100
 Climate Change (%) 0, 0, 40

WARNING: Half Drain Time has not been calculated as the structure is too full.

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.000	S1	15 Winter	100	+40%	100/15 Summer			
S1.001	S2	600 Winter	100	+40%	100/120 Winter			
S1.002	S3	600 Winter	100	+40%	100/60 Winter			
S1.003	S4	600 Winter	100	+40%	100/60 Winter			
S2.000	S5	15 Winter	100	+40%	30/15 Summer			
S1.004	S5	600 Winter	100	+40%	100/15 Summer			
S3.000	S7	15 Winter	100	+40%	30/15 Summer			
S1.005	S6	600 Winter	100	+40%	30/30 Winter			
S4.000	S9	15 Winter	100	+40%	30/15 Summer			
S1.006	S7	15 Winter	100	+40%	100/15 Summer			
S5.000	S11	15 Winter	100	+40%	30/15 Summer			
S1.007	S8	15 Winter	100	+40%	100/15 Summer	100/15 Winter		
S1.008	S9	15 Winter	100	+40%	100/15 Summer	100/15 Winter		
S6.000	S14	15 Winter	100	+40%	30/15 Summer			
S1.009	S10	15 Winter	100	+40%	30/15 Winter			
S1.010	S11	15 Winter	100	+40%	30/15 Winter			

.
.
.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Water Level (m)	Surcharged Depth (m)	Flooded Volume (m ³)	Flow / Overflow Cap. (l/s)	Half Drain Pipe		Status
						Time (mins)	Flow (l/s)	
S1.000	S1	74.719	0.519	0.000	1.39	3	149.3	SURCHARGED
S1.001	S2	74.368	0.178	0.000	0.05		13.9	SURCHARGED
S1.002	S3	74.368	0.248	0.000	0.06		13.2	SURCHARGED
S1.003	S4	74.368	0.268	0.000	0.06		21.5	SURCHARGED
S2.000	S5	75.085	0.885	0.000	2.01	3	181.2	SURCHARGED
S1.004	S5	74.367	0.427	0.000	0.12		46.1	SURCHARGED
S3.000	S7	74.853	0.953	0.000	2.53	5	181.1	SURCHARGED
S1.005	S6	74.366	0.636	0.000	0.02		7.8	SURCHARGED
S4.000	S9	74.677	1.047	0.000	2.72	2	164.6	SURCHARGED
S1.006	S7	73.970	0.460	0.000	0.55		212.1	SURCHARGED
S5.000	S11	74.200	0.780	0.000	2.37	3	149.5	SURCHARGED
S1.007	S8	73.901	0.611	0.550	1.05		386.9	FLOOD
S1.008	S9	73.740	0.610	0.180	1.15		377.0	FLOOD
S6.000	S14	73.700	0.580	0.000	2.19	5	129.6	SURCHARGED
S1.009	S10	73.591	0.581	0.000	1.27		440.2	FLOOD RISK
S1.010	S11	73.400	0.470	0.000	1.32		440.4	FLOOD RISK

PN	US/MH Name	Level Exceeded
S1.000	S1	
S1.001	S2	
S1.002	S3	
S1.003	S4	
S2.000	S5	
S1.004	S5	
S3.000	S7	
S1.005	S6	
S4.000	S9	
S1.006	S7	
S5.000	S11	
S1.007	S8	1
S1.008	S9	1
S6.000	S14	
S1.009	S10	
S1.010	S11	

.

Date 29/11/2023 11:23

Designed by jasonmagee

File Drawnet.MDX

Checked by



Innovyze

Network 2020.1.3

100 year Return Period Summary of Critical Results by Maximum Level (Rank 1) for Storm

PN	US/MH Name	Storm	Return Period	Climate Change	First (X) Surcharge	First (Y) Flood	First (Z) Overflow	Overflow Act.
S1.011	S12	15 Winter	100	+40%	30/15 Winter			
S1.012	S13	1440 Winter	100	+40%	30/15 Winter			
S1.013	S14	1440 Winter	100	+40%	100/60 Winter			
S7.000	S20	15 Winter	100	+40%	30/15 Summer			
S7.001	S21	960 Winter	100	+40%	100/480 Winter			
S7.002	S22	960 Winter	100	+40%	100/240 Winter			
S7.003	S23	960 Winter	100	+40%	100/15 Winter			
S7.004	S24	960 Winter	100	+40%	100/15 Winter			
S7.005	S25	960 Winter	100	+40%	100/60 Winter			

PN	US/MH Name	Water Surcharged			Flooded		Half Drain Pipe		Status
		Level (m)	Depth (m)	Volume (m ³)	Flow / Cap. (l/s)	Overflow (l/s)	Time (mins)	Flow (l/s)	
S1.011	S12	73.207	0.367	0.000	1.47			509.1	FLOOD RISK
S1.012	S13	73.156	0.426	0.000	0.15			45.5	FLOOD RISK
S1.013	S14	73.156	0.456	0.000	0.03			10.9	SURCHARGED
S7.000	S20	73.453	0.613	0.000	2.18		4	129.3	SURCHARGED
S7.001	S21	73.047	0.057	0.000	0.05			12.9	FLOOD RISK
S7.002	S22	73.047	0.117	0.000	0.04			12.3	FLOOD RISK
S7.003	S23	73.047	0.197	0.000	0.08			26.7	SURCHARGED
S7.004	S24	73.046	0.316	0.000	0.09			27.5	SURCHARGED
S7.005	S25	73.046	0.346	0.000	0.01			3.1	SURCHARGED

PN	US/MH Name	Level Exceeded
S1.011	S12	
S1.012	S13	
S1.013	S14	
S7.000	S20	
S7.001	S21	
S7.002	S22	
S7.003	S23	
S7.004	S24	
S7.005	S25	



- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
 - Levels shown in metres above Ordnance Datum (mAOD).

SEE INSERT

INSERT
SCALE 1:1000

FOR INFORMATION					
P01	J.MAGEE	24/11/23	J.MAGEE	24/11/23	
REV	REVISION NOTES/COMMENTS				
	DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY

Merchants' House North
Wasping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
**DRAINAGE LAYOUT
SITE WIDE**

HYDROCK PROJECT NO. C-27280	SCALE @ A1 1:1000	STATUS S2
STATUS DESCRIPTION SUITABLE FOR INFORMATION		REVISION P01
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-SK-C-7790		

Appendix C – External Designs

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)

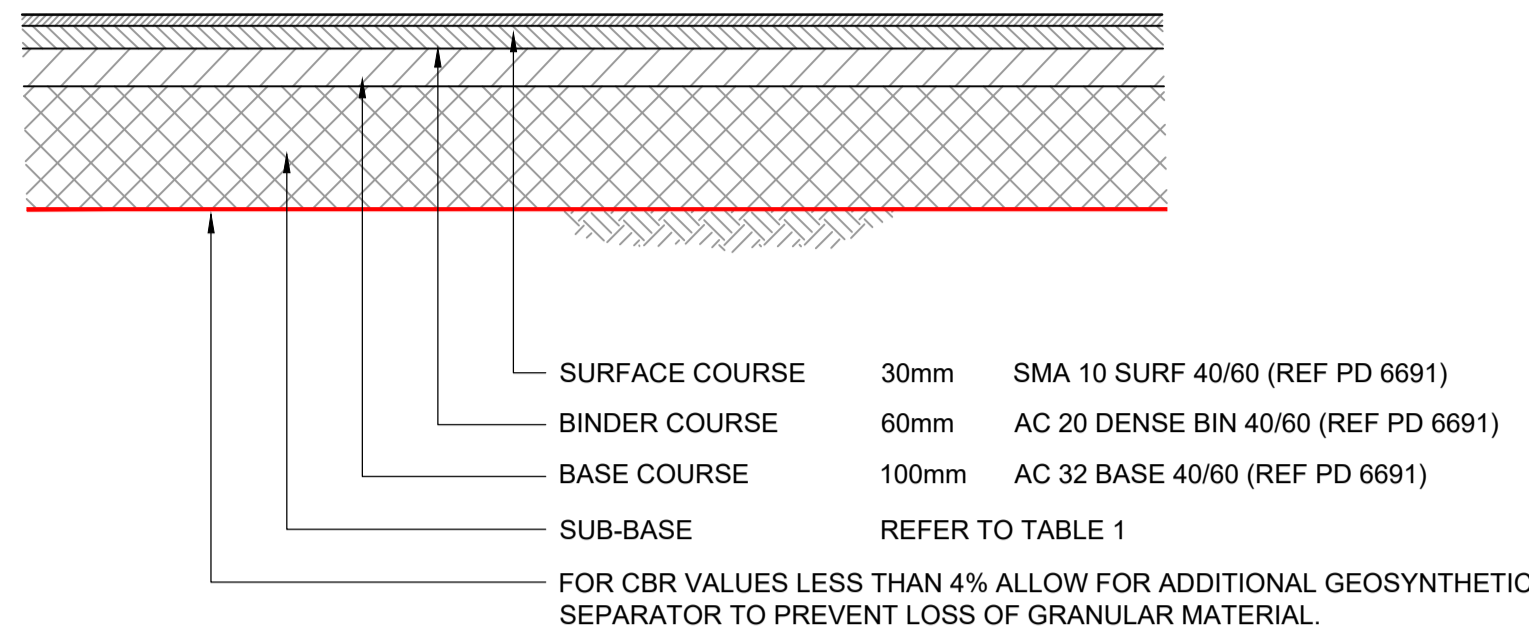


Table 1 : Minimum Sub-base Thickness

California Bearing Ratio (CBR) Values	MINIMUM THICKNESS (mm) OF SUB-BASE (Consolidated in accordance with MCHW Volume 1 clause 801, table 8/1)
LESS THAN 2.5%	N/A ¹
2.5%	350
3%	300
4%	250
5%	225
10%	175
15%	150
GREATER THAN 15%	150 ²

¹ For all pavements on subgrades with CBR values below 2.5%, 150mm of sub-base on a varying thickness of capping must be used. Refer to engineer for advise.
² The minimum depth of Type 1 material is 150mm.

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)

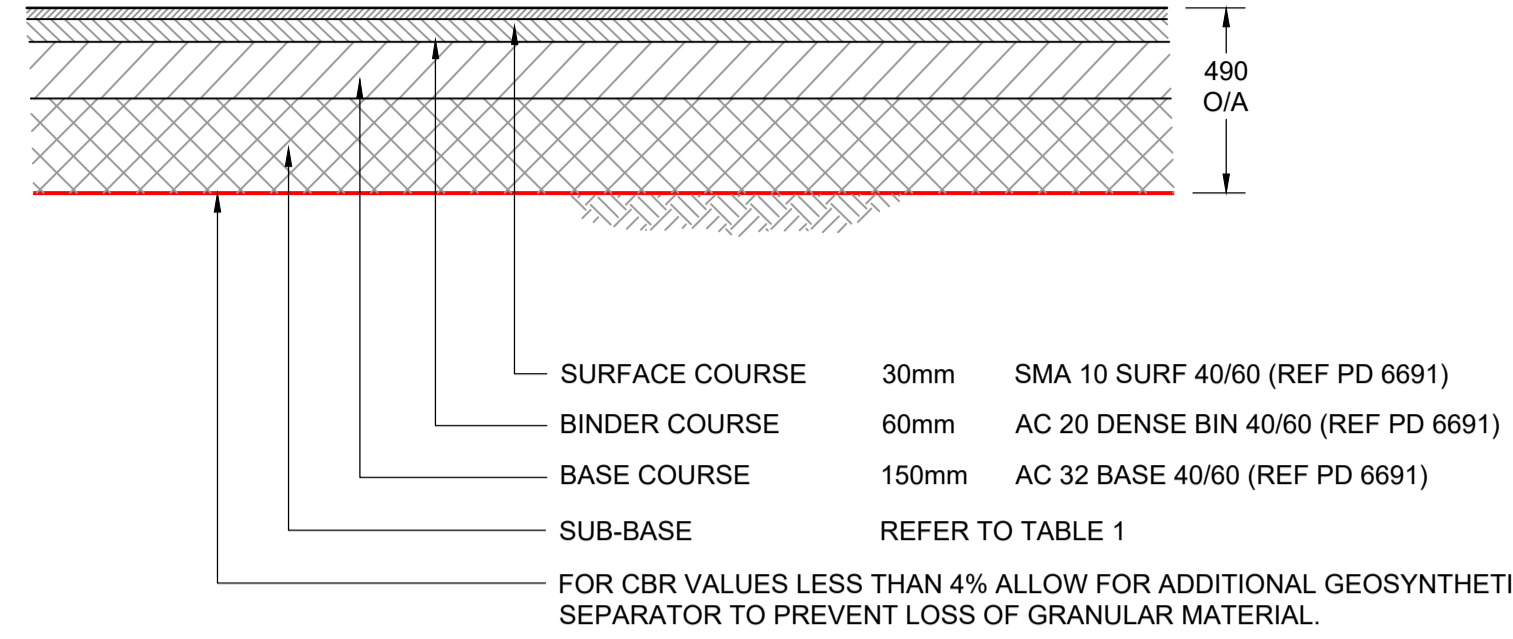


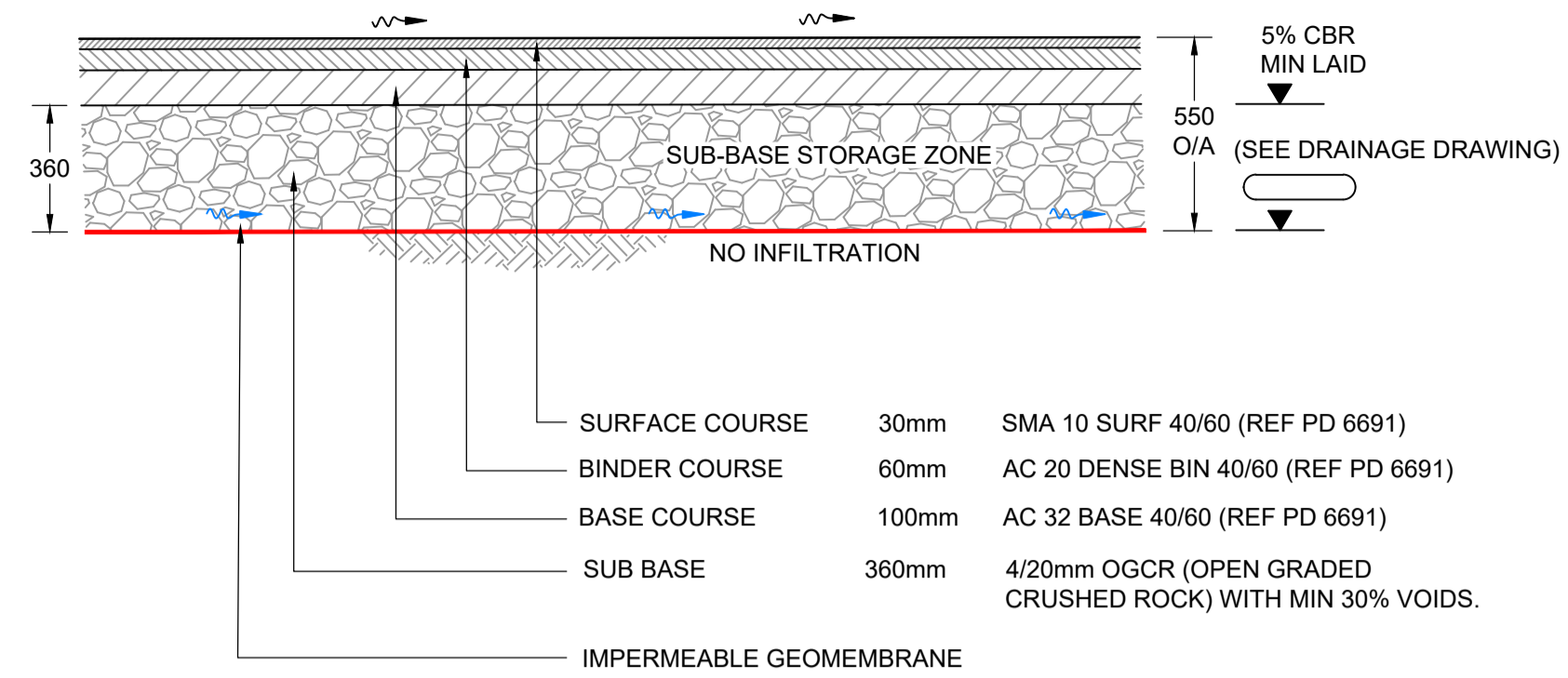
Table 1 : Minimum Sub-base Thickness

California Bearing Ratio (CBR) Values	MINIMUM THICKNESS (mm) OF SUB-BASE (Consolidated in accordance with MCHW Volume 1 clause 801, table 8/1)
LESS THAN 2.5%	N/A ¹
2.5%	350
3%	300
4%	250
5%	225
10%	175
15%	150
GREATER THAN 15%	150 ²

¹ For all pavements on subgrades with CBR values below 2.5%, 150mm of sub-base on a varying thickness of capping must be used. Refer to engineer for advise.
² The minimum depth of Type 1 material is 150mm.

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)



TYPE A3 (AT): ASPHALT WITH ATTENUATING SUB-BASE PAVING CONSTRUCTION
(Cars, Light Vehicles & Occasional Heavy Goods Vehicles)

SCALE 1:20

KEY PLAN

NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- CBR values in accordance with SI report, contractor to inform engineer of any soft spots during construction.
- In the event of any contradiction between this drawing and the specification, then the contractor shall seek clarification from the engineer before proceeding.
- All in-situ concrete and precast concrete components to be manufactured using sulphate resisting portland cement (srpc) to BS 4027, if required, subject to soil conditions.
- Refer to landscape architects drawings for extent of external surfaces and kerbing.
- Drainage trenches within traffic areas and footways or in areas to be adopted shall be backfilled using granular type 1 material up to the road formation level.
- Old drainage or service trenches to be excavated are to remove soft or degraded material and backfilled with specified granular sub-base material.
- Subgrade variation: if material appears to vary from anticipated conditions, or if there are extensive soft spots, test subgrade CBR to BS 1377-4 OR BS 1377-9.
- Soft or damaged areas to be excavated and replaced with sub-base material, compacted in layers 300 mm (maximum) thick.
- Final excavation to formation / subformation level to be carried before compaction of subgrade.
- Excavation or compaction not to be carried out in wet conditions when the subgrade may be damaged or destabilized.
- Compact thoroughly by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads / pavings.
- Particular care to be taken when compacting fully at intrusions, perimeters and where local excavation or backfilling has taken place.
- Subgrade improvement layer (capping) to Highways Agency 'Specification For Highway Works', Table 6/1. Placed and compacted to Highways Agency 'Specification For Highway Works', Table 6/1, Clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.
- Depth of frost susceptible material below final surface of paving to be (minimum) 450mm.
- Do not place fill on frozen surfaces. remove material affected by frost. Replace and re-compact if not damaged after thawing.
- Subgrades and sub-base should be protected to prevent degradation by construction traffic, construction operations and inclement weather.
- Type 1 unbound mixture for sub-base to Highways Agency 'Specification For Highway Works', Clause 801 and 803.
- Type 1 to be spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.
- At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place particular care should be taken to ensure material is fully compacted.

A PRELIMINARY CBR VALUE OF 4% (MINIMUM), TAKEN FROM 5012503-RDG-XX-ST-DOC-C-00GCA01-A-Ground Condition Assessment.

TYPE A3: ASPHALT PAVING CONSTRUCTION

(Cars, Light Vehicles & Occasional Heavy Goods Vehicles)

SCALE 1:20

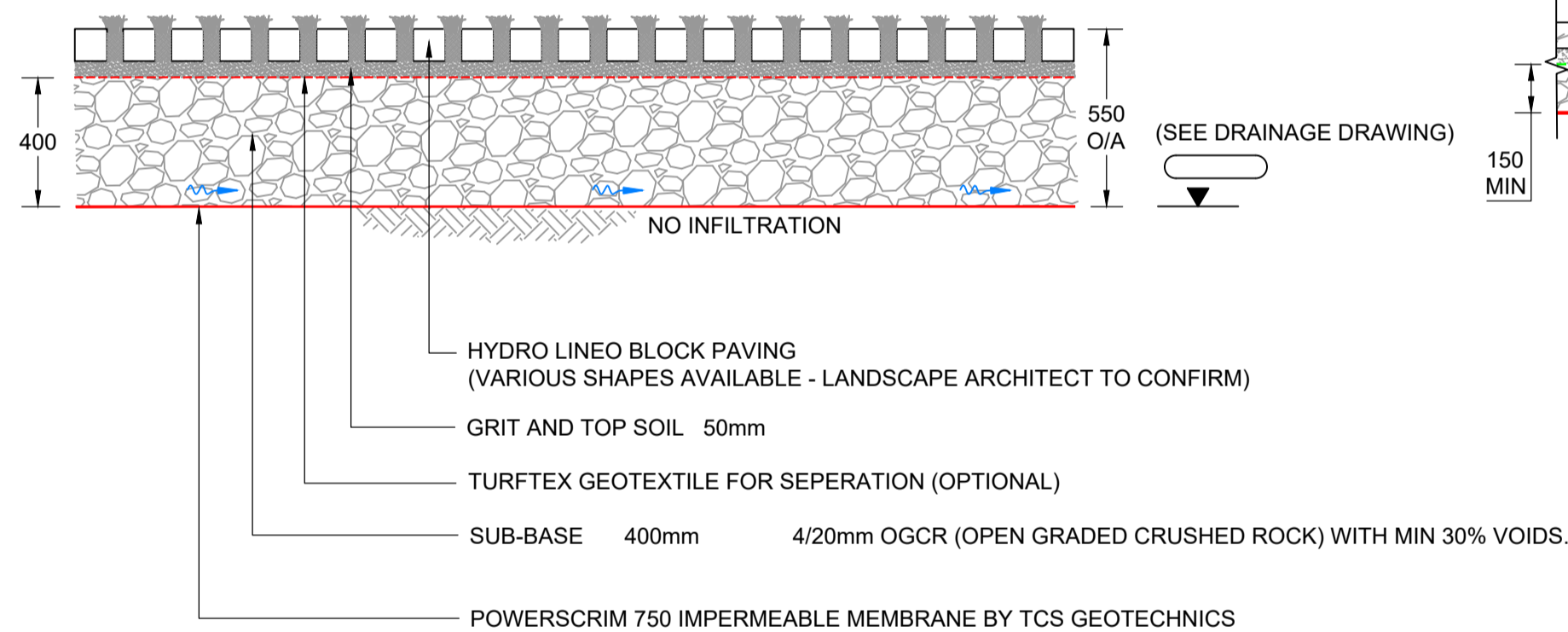
TYPE A4: ASPHALT PAVING CONSTRUCTION

(Frequent Heavy Goods Vehicles)

SCALE 1:20

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)



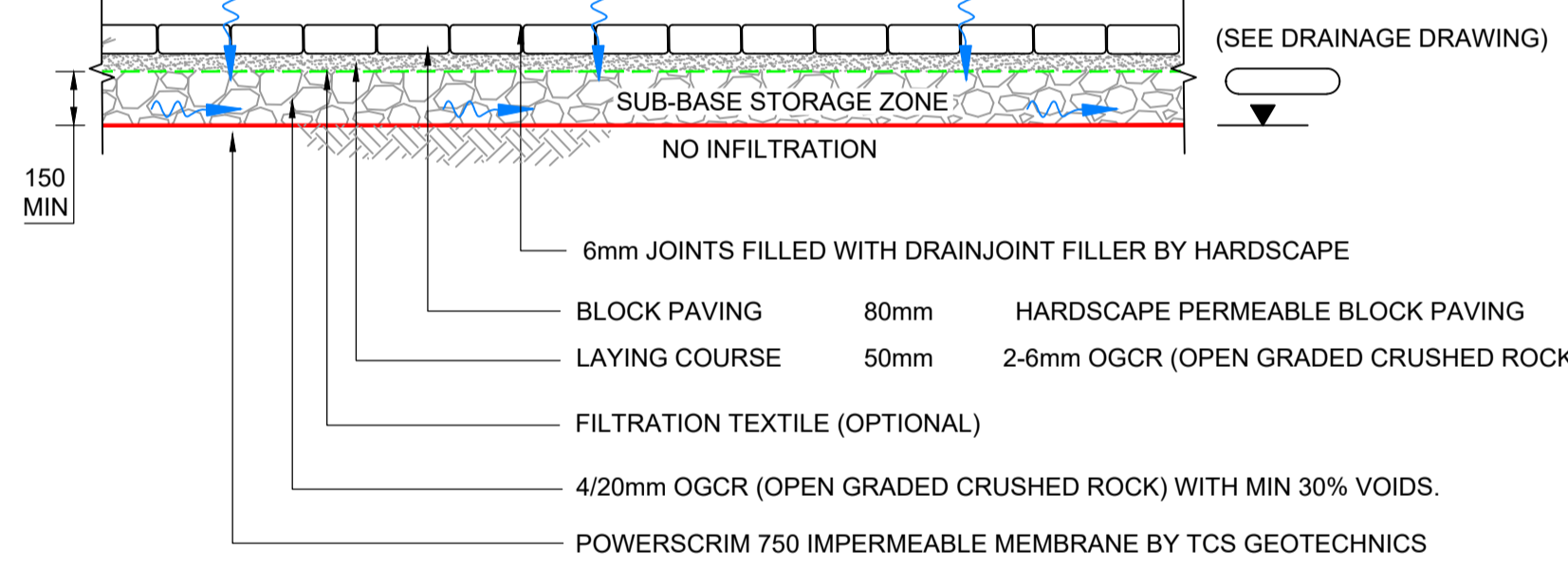
TYPE HLO2: HYDRO LINEO GRASS BUILD UP

(Cars & Light Vehicles & Occasional Heavy Goods Vehicles)

SCALE 1:20

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)



TYPE P-B1 (P): BLOCK PAVING CONSTRUCTION (PERMEABLE)

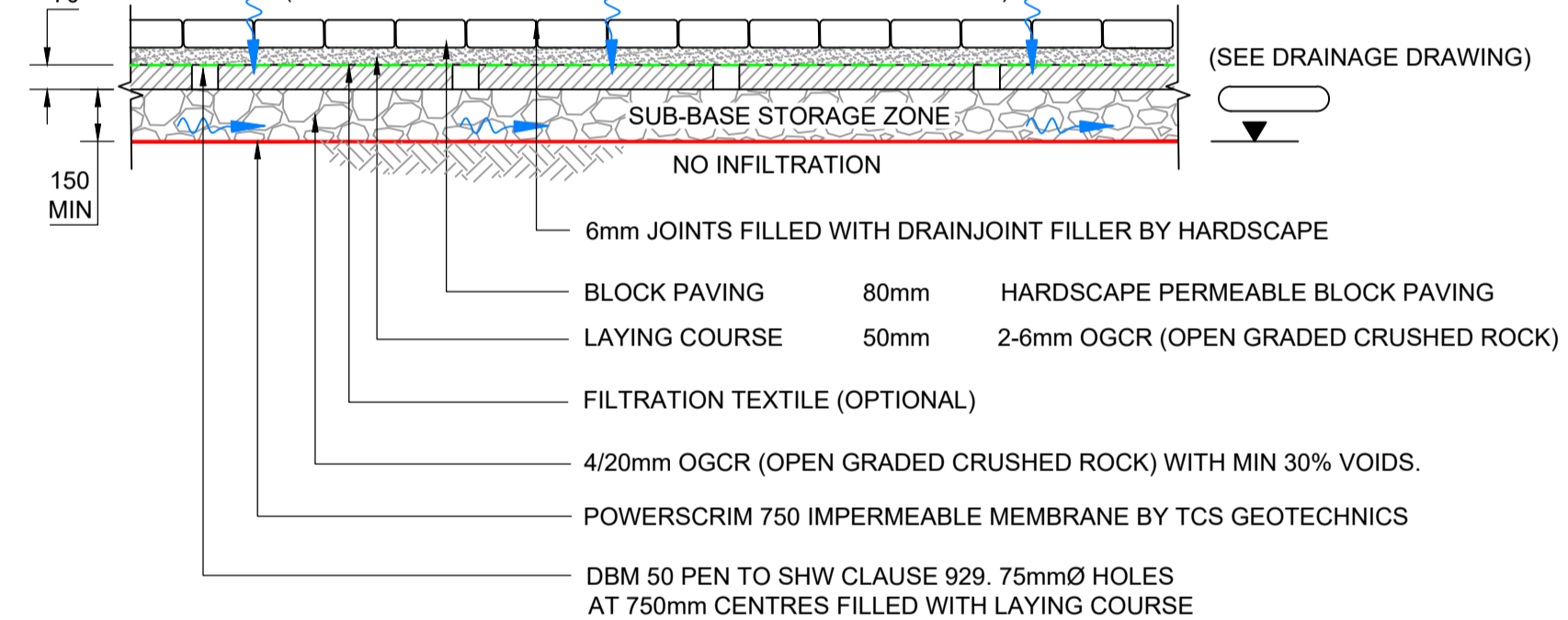
(Pedestrian Loading only)

SYSTEM TYPE C

SCALE 1:20

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL

(REFER TO SITE INVESTIGATION FOR GROUND CONDITIONS)



TYPE P-B3 (P): BLOCK PAVING CONSTRUCTION (PERMEABLE)

(Cars & Light Vehicles & Occasional Heavy Goods Vehicles)

SYSTEM TYPE C

SCALE 1:20

CBR of subgrade %	Additional thickness of course graded material (mm)
1%	300
2%	175
3%	125
4%	100
5%	0

- NOTE:
- DETAIL ABOVE MAKES NO ALLOWANCE FOR ADDITIONAL REQUIREMENTS SHOULD THE PERMEABLE CONSTRUCTION BE USED FOR SITE TRAFFIC. REFER TO PARAGRAPH 5.6.4 OF BS7533-13:2009 FOR MORE INFORMATION.
 - MATERIALS TO HARDSCAPE SPECIFICATION

CBR of subgrade %	Additional thickness of course graded material (mm)
1%	300
2%	175
3%	125
4%	100
5%	0

- NOTE:
- DETAIL ABOVE MAKES NO ALLOWANCE FOR ADDITIONAL REQUIREMENTS SHOULD THE PERMEABLE CONSTRUCTION BE USED FOR SITE TRAFFIC. REFER TO PARAGRAPH 5.6.4 OF BS7533-13:2009 FOR MORE INFORMATION.
 - MATERIALS TO HARDSCAPE SPECIFICATION

SUITABLE FOR STAGE 3	
J.MAGEE	03/11/23
J.MAGEE	03/11/23

REVISION NOTES/COMMENTS					
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock
Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
EXTERNAL DETAILS

HYDROCK PROJECT NO.
C-27280

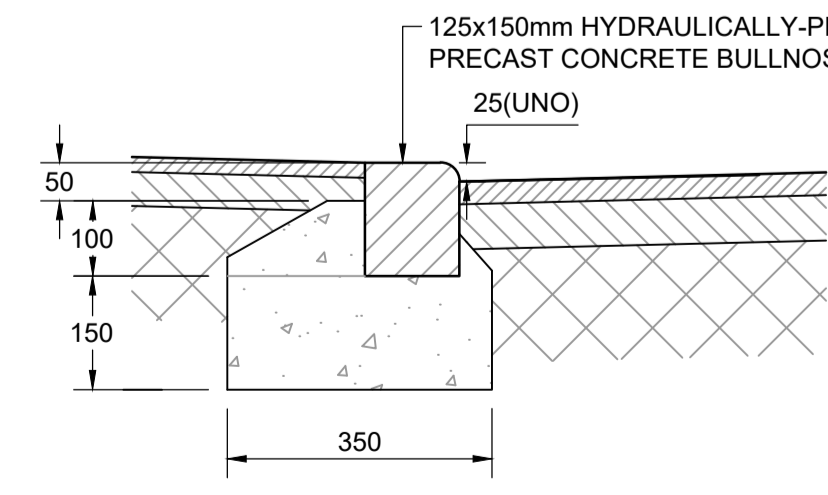
SCALE @ A1
AS SHOWN

STATUS
SUITABLE FOR STAGE 3

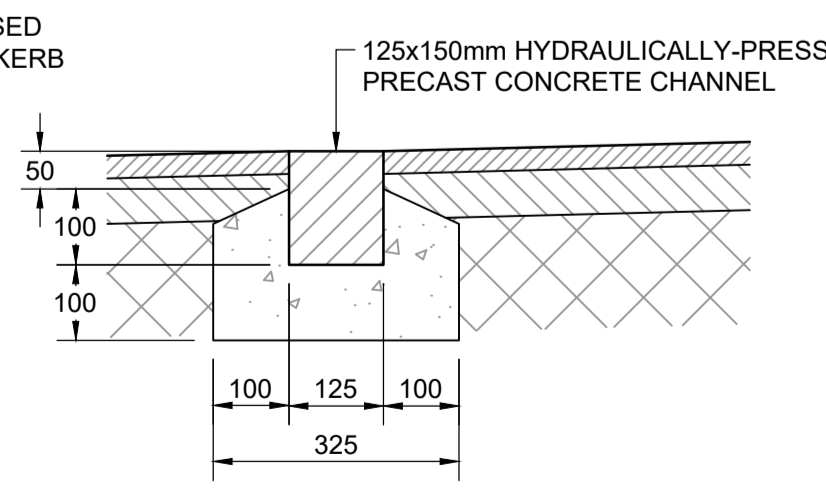
REVISION
27280-HYD-00-ZZ-DR-C-7300

STATUS
S2

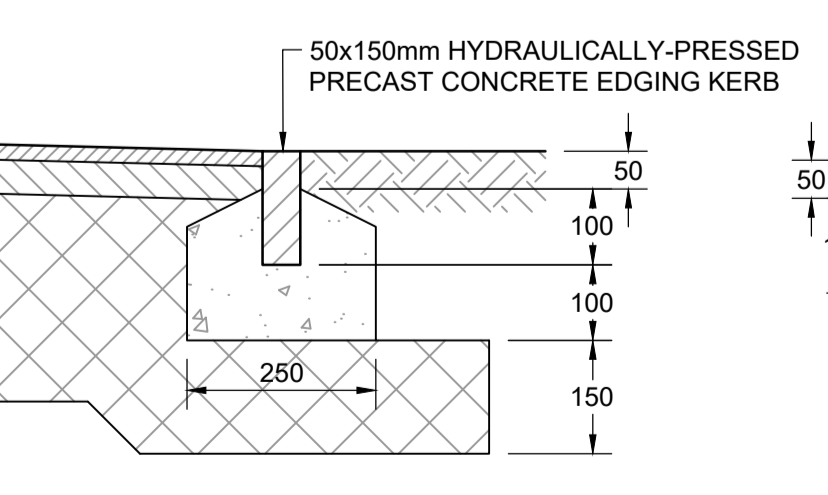
REVISION
PO1



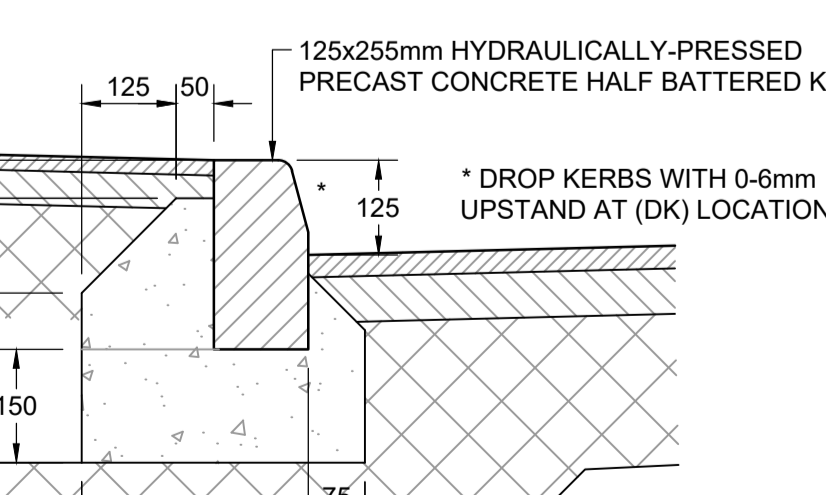
BULL NOSE KERB DETAIL (BN 25mm AND BN FLUSH)
SCALE 1:10



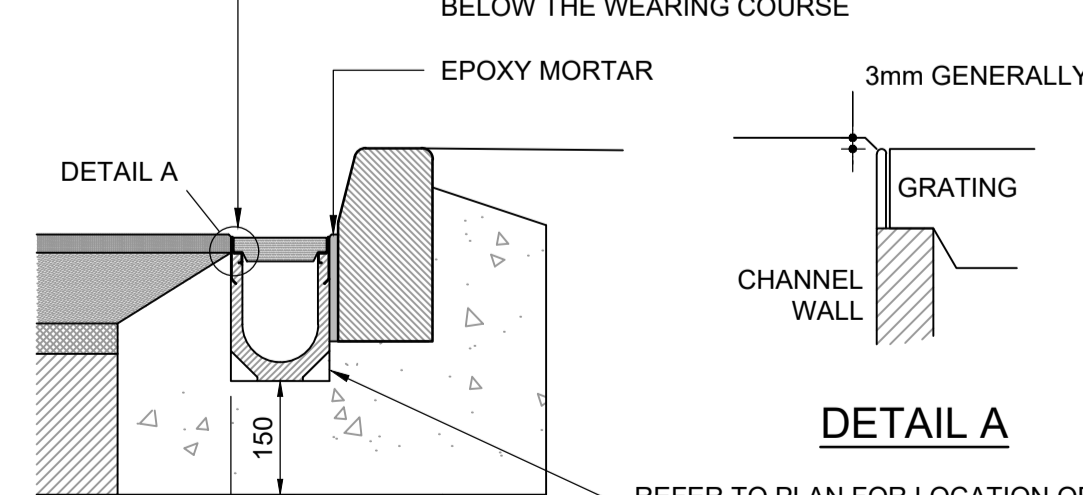
CHANNEL BLOCK KERB DETAIL (CS2)
SCALE 1:10



FOOTWAY EDGING DETAIL (EF)
SCALE 1:10



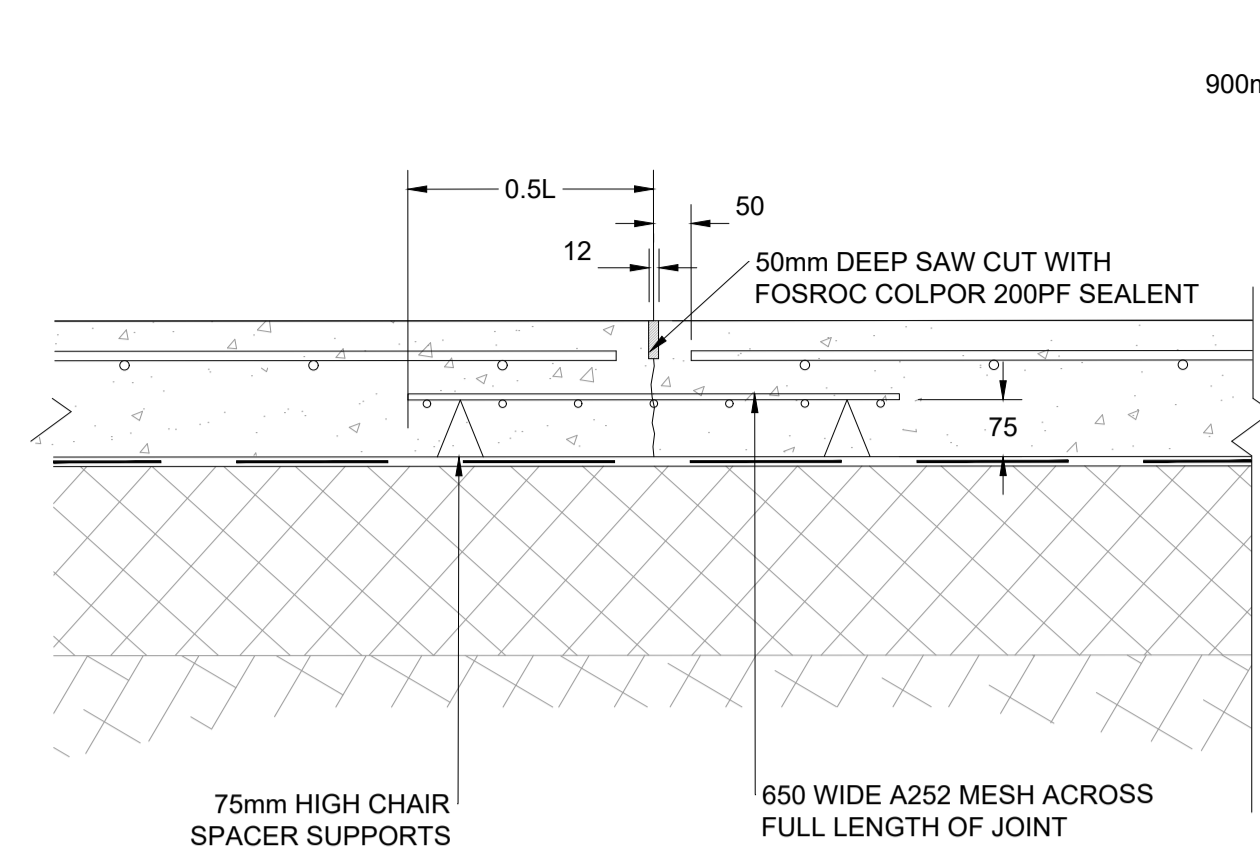
HALF BATTERED KERB DETAIL (HB2)
SCALE 1:10



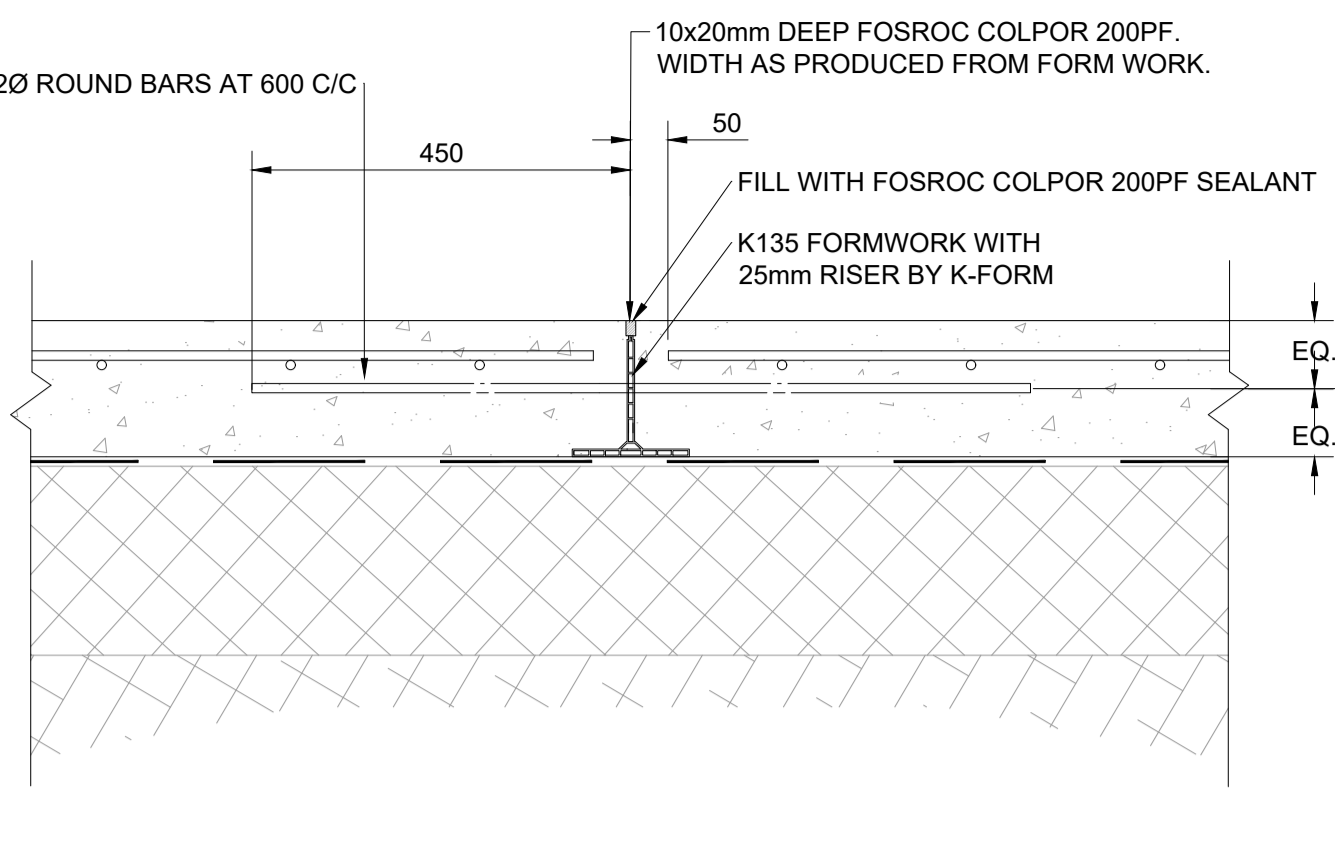
ACO LINEAR DRAINAGE CHANNEL DETAIL
SCALE 1:10

SURFACE PROTECTION:
IN ASPHALT PAVEMENTS AVOID CONTACT BETWEEN COMPACTION EQUIPMENT AND CHANNEL/GRATING. THIS MAY BE ACHIEVED BY ENSURING THAT THE FINISHED SURFACE LEVEL LIES ABOVE THE GRATING LEVEL (BY AT LEAST 3mm). STONES SHOULD BE REMOVED FROM GRATING PRIOR TO LAYING/ROLLING WEARING COURSE.

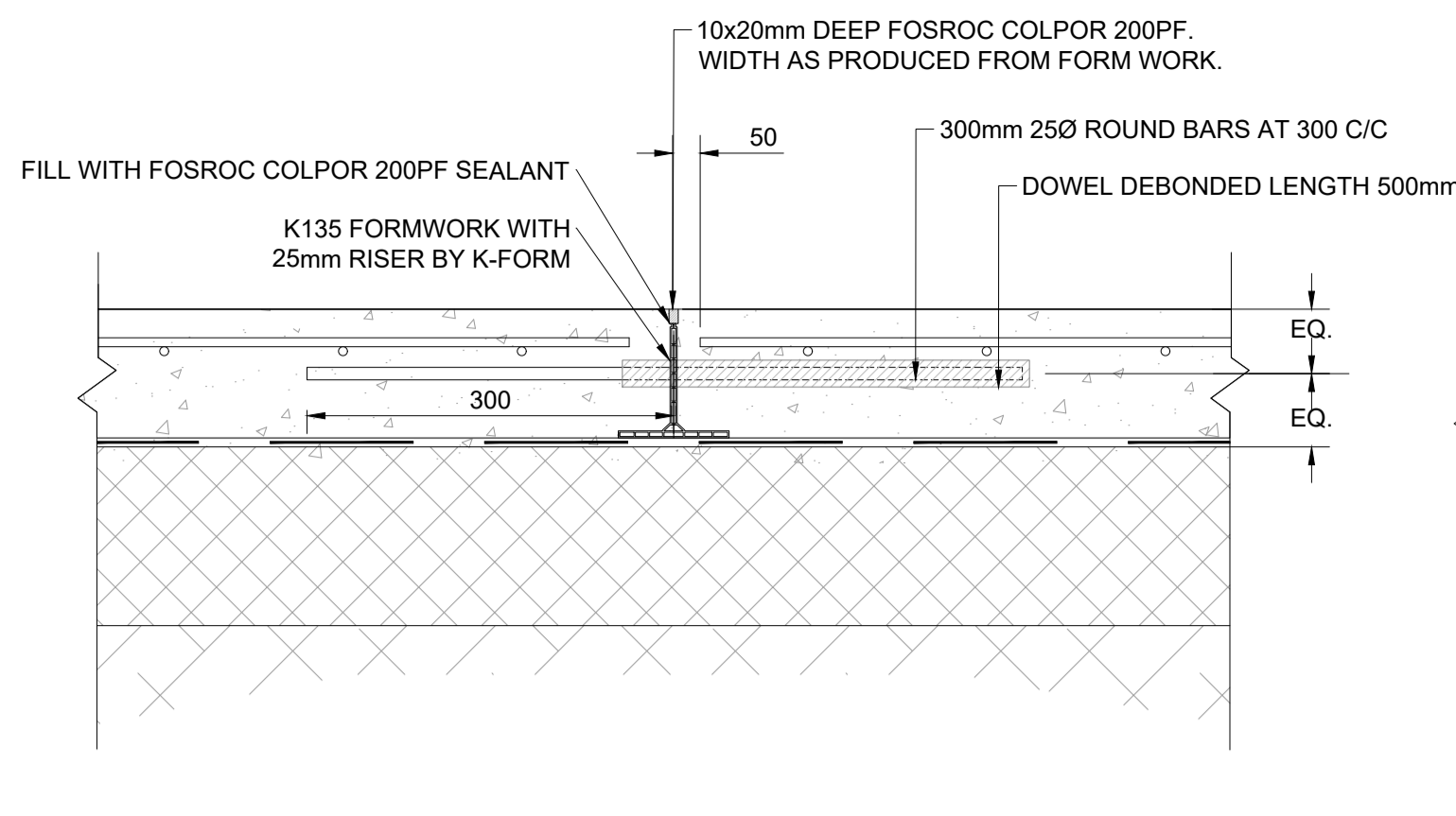
GENERAL INSTALLATION NOTES:
ACO DRAIN TO BE CONSTRUCTED IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS



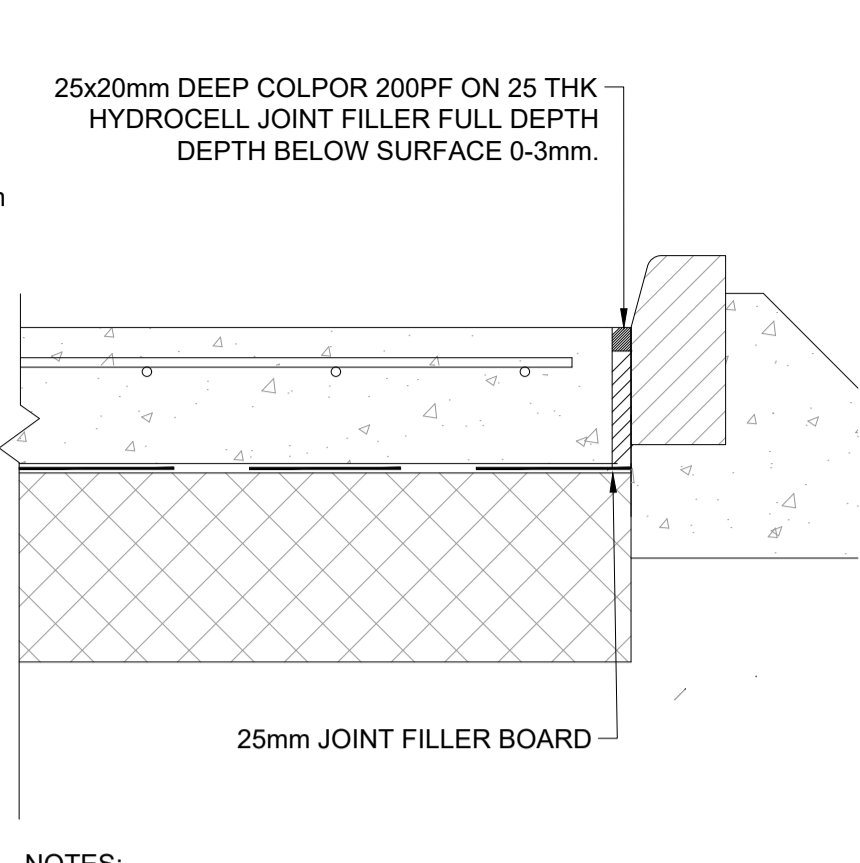
SAWN RESTRAINED-MOVEMENT JOINT
SCALE 1:10



LONGITUDINAL JOINTS
SCALE 1:10



FORMED FREE-MOVEMENT - CONTRACTION JOINTS
SCALE 1:10



ISOLATION JOINTS
SCALE 1:10

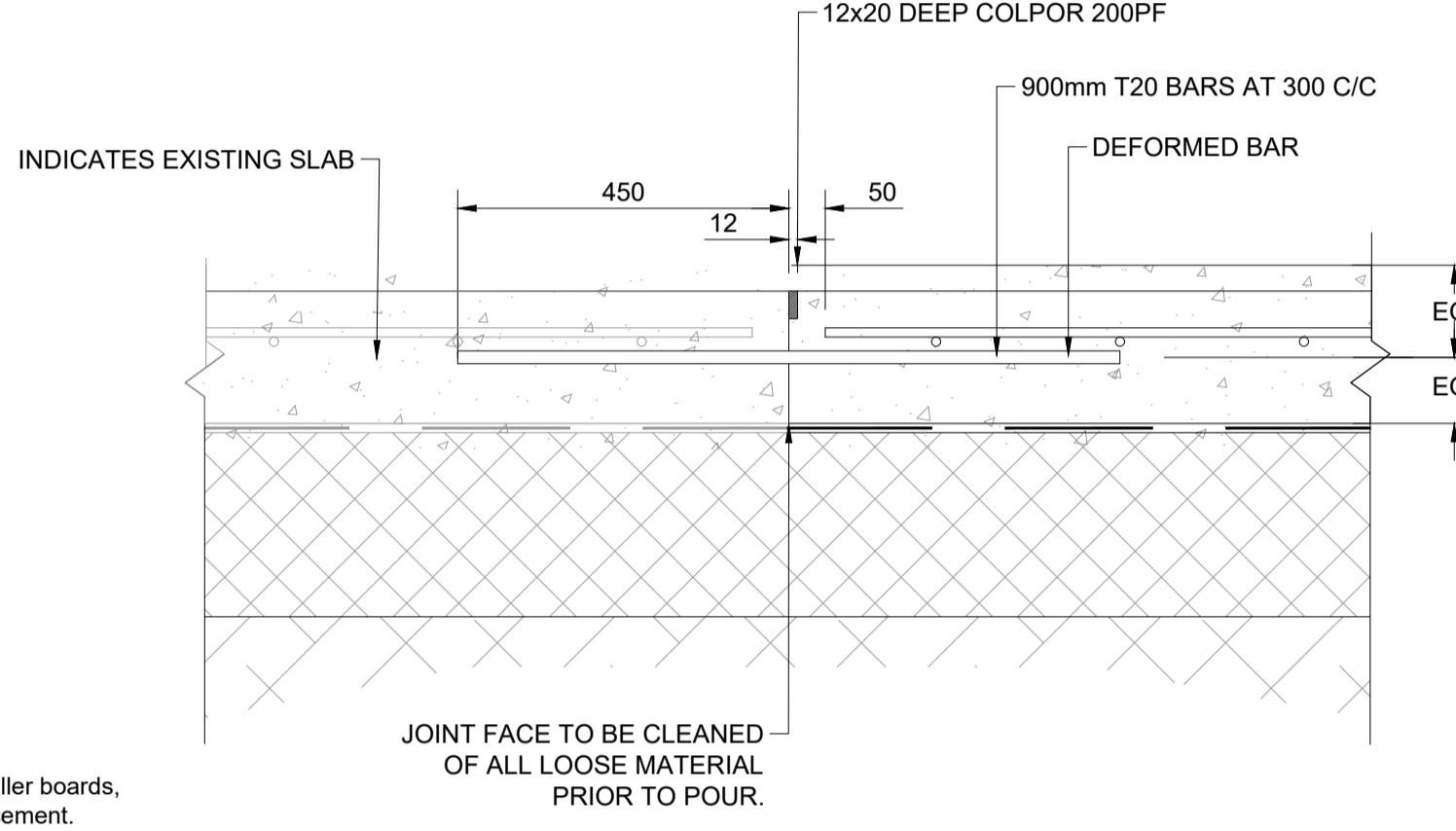
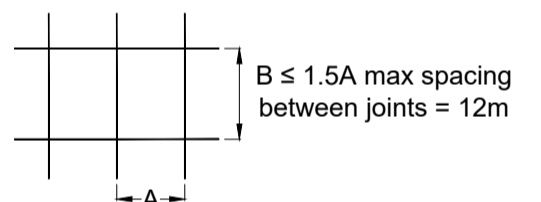
NOTES:
1. ISOLATION JOINTS TO BE PROVIDED AT ALL GULLIES, MANHOLES AND CHANNELS WHERE THE PAVEMENT ABUTS WALLS.

Notes:

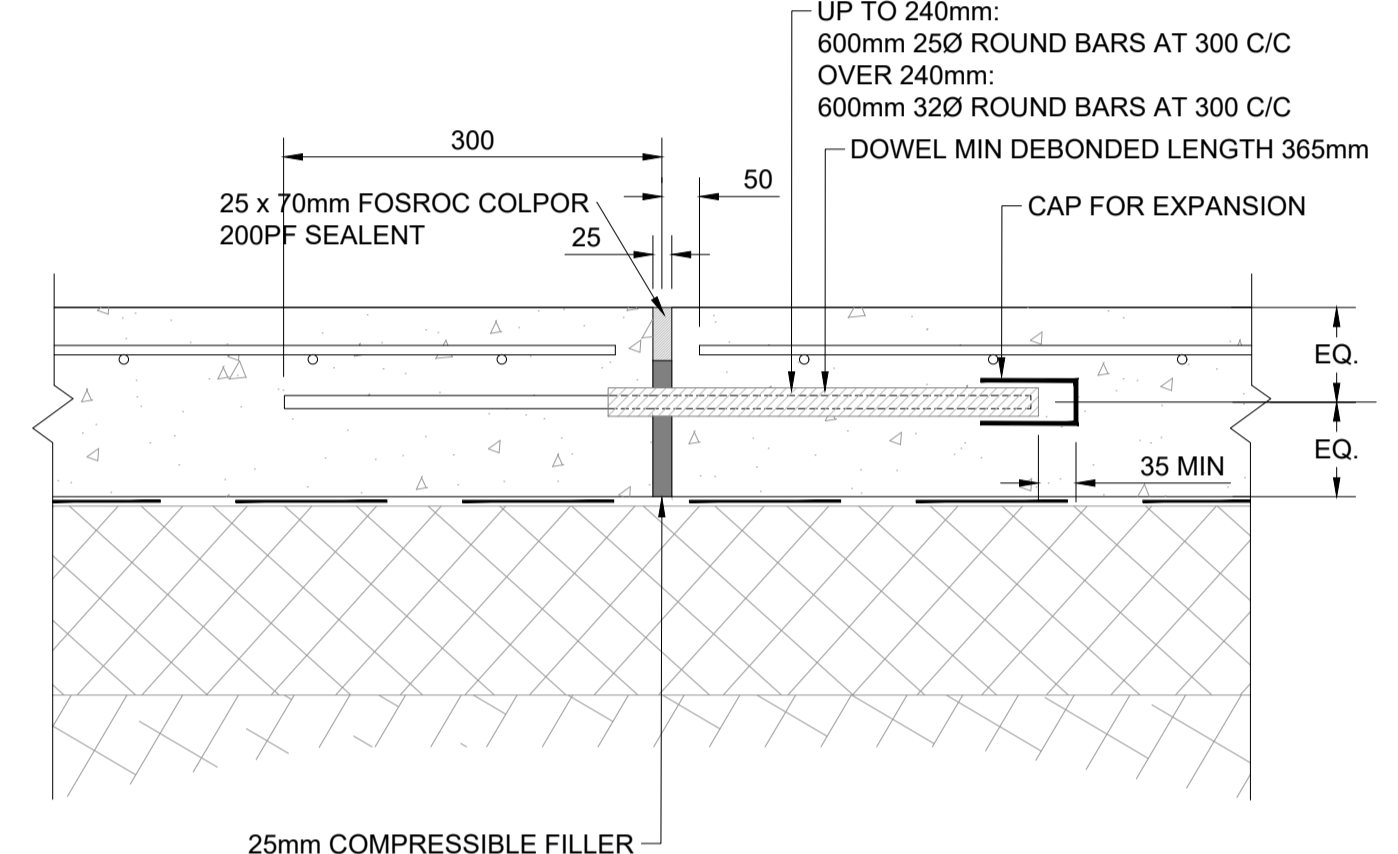
- GENERAL PREPARATION**
- READY MIXED CONCRETE**
 - Production plant: currently certified by a body accredited by UKAS to BS EN ISO/IEC 170605 for product conformity certification
 - Source of ready-mixed concrete: obtain from one source if possible. Otherwise, submit proposals.
 - Name and address of depot: submit before any concrete is delivered.
 - Delivery notes: Retain for inspection.
 - Declarations of nonconformity from concrete producer: Notify immediately.
 - SUB BASE PREPARATION**
 - Surface: Sound, free of debris, mud and soft spots, and suitably close textured.
 - Levels and falls: Within specified tolerances:
 - Vehicular areas: +20 mm.
 - Pedestrian areas: +12mm.
 - Drainage outlets: +0 to -10 mm of required finished level.
 - Kerbs and edgings: Complete, adequately bedded and haunched, and to required levels.
 - LAYING FABRIC REINFORCEMENT**
 - Flatness: Lay in flat sheets, straight and out of winding.
 - Main reinforcement: Parallel to long axis of slab.
 - Temporary support: Securely fix and support fabric during construction of slab.
 - STEEL FRAMEWORK**
 - Side forms: Steel, drilled for dowel bars, free from warping and kinks.
 - Fixing:
 - To required line, +10mm.
 - To required level, +3mm.
 - Locking plates: Use where necessary to ensure rigidity and prevent movement during laying and compaction of concrete.
 - Removal of forms: Six hours (minimum) after completing compaction. Treat exposed edges with waterproof compound.
- LAYING CONCRETE**
- TRANSPORTING CONCRETE**
 - General: Avoid contamination, segregation, loss of ingredients, excessive evaporation and loss of workability. Protect from heavy rain.
 - Entrained air: Anticipate effects of transport and placing methods in order to achieve specified air content.
 - Placing: Use suitable walkways and barrow runs for traffic over reinforcement and freshly placed concrete.
 - LAYING CONCRETE GENERALLY**
 - Timing: Place as soon as practicable after mixing and while sufficiently plastic for full compaction. After discharge from the mixer do not add water or retemper.
 - Temperature of concrete at point of delivery:
 - In hot weather (maximum): 30°C.
 - In cold weather (minimum): 5°C.
 - Cold weather:
 - Do not use frozen materials.
 - Do not place concrete against frozen or frost covered surfaces.
 - Do not place concrete when air temperature is below 3°C on a falling thermometer. Do not resume placing until rising air temperature has reached 3°C.
 - Surfaces on which concrete is to be placed: Free from debris and standing water.
 - Placing in final position: Place in one continuous operation up to construction joints.
 - Do not place concrete simultaneously on both sides of movement joints.
 - Spreading: Spread and strike off with surcharge sufficient to obtain required compacted thickness.
 - Adjacent work: Form neat junctions and prevent damage. Keep clean all channels, kerbs, inspection covers, etc.
 - COMPACTING**
 - General: Fully compact concrete to full depth (until air bubbles cease to appear on the surface) especially around reinforcement, cast-in accessories, into corners and at joints.
 - Poker vibrators: Do not use to make concrete flow into position. Do not allow to come into contact with fabric reinforcement.
 - Wet formed joint grooves: Rectify any irregularities by means of a vibrating float.
 - Finish: A dense, even textured surface free from laitance or excessive water.
 - Excess concrete: Remove from top of groove formers.
 - MANHOLE COVER AND GULLY GRATING FRAMES**
 - General: Set frames in independent concrete slabs placed over, but slightly larger than, exterior of manhole shaft or gully pot and any concrete surround.
 - Positioning of joints in main slab: Set out so that manhole/ gully slabs are adjacent to a main transverse joint, wherever possible.
 - Joints: Separate the independent slabs from main slabs with 25 mm thick joint filler board. Set board 20 mm below top of slab to form a sealing groove.
 - LEVELS**
 - Lines and levels of finished surface: Smooth and even, with regular falls to prevent ponding.
 - Finished surfaces: Within ±6 mm of required levels (+6 or -0 mm adjacent to gullies and manholes).
 - SURFACE REGULARITY**
 - General: Where appropriate in relation to the geometry of the surface, the variation in gap under a 3 m straightedge (with feet) placed anywhere on the surface to be not more than 5 mm.
 - Sudden irregularities: Not permitted.

JOINTS

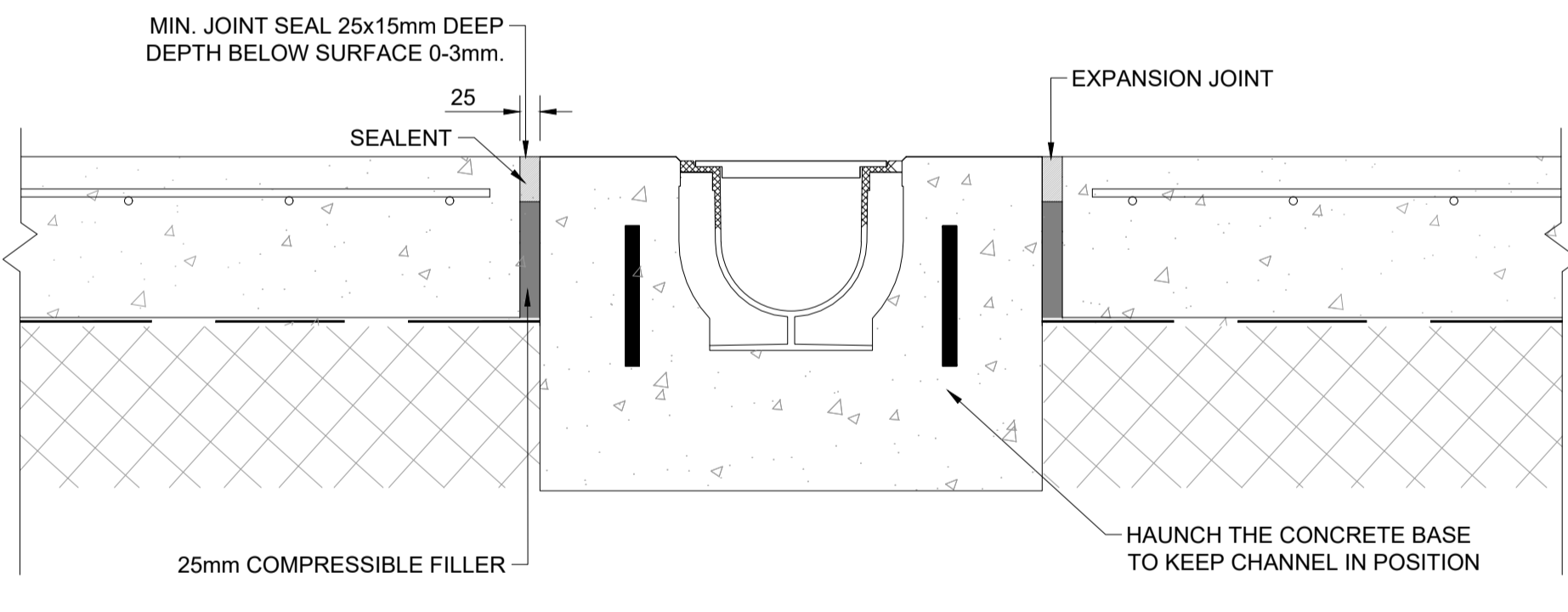
- JOINTS GENERALLY**
 - Layout: All joints to be accurately located, straight and well aligned.
 - Construction joints made at end of working day: Form as contraction joints.
 - Modifications to joint design or location: Submit proposals.
 - Temporary support: Prior to concreting, set formwork, dowel bars, tie bars, joint filler boards, sealing groove fillets and the like rigidly in position and support to prevent displacement. Maintain support until concrete has set.
 - Keep clean:
 - Do not allow concrete to enter any gaps or voids in formwork or to render movement joints ineffective.
 - Do not allow concrete to impregnate or penetrate materials used as compressible joint fillers.
- LONGITUDINAL CONSTRUCTION JOINTS**
 - Definition: Longitudinal joints are those parallel to the main axis of the paving.
 - Standard: To Concrete Society Technical Report 28.
 - Formed groove:
 - Size (minimum width x depth): 15 x 13 mm.
 - Preparation: Repair damaged edges of initially cast slab prior to forming groove.
 - Method: Fix preformed fillet against top edge of the initially cast slab before placing the adjacent slab. Remove when concrete is fully cured.
 - Completion: Round upper edges of slabs at joints to 5 mm radius. Do not overwork concrete.
 - Completion: Round upper edges of slabs at joints to 5 mm radius. Do not overwork concrete.
- CONTRACTION JOINTS WITH SAWN GROOVE**
 - Standard: To Concrete Society Technical Report 28.
 - Temperature: Do not start sawing if temperature is falling.
 - Sawn groove:
 - Timing: Cut as early as possible after the slab has been placed but without causing edges of groove to spall.
 - Width (minimum): 3 mm.
 - Depth: 3 mm per 10 mm depth of slab or 50 mm, whichever is the greater.
 - Upper portion of joint: Enlarge by sawing a groove:
 - Width (minimum): 13 mm.
 - Depth: 25mm
- EXPANSION JOINTS**
 - Joint filler board:
 - Type: Bitumen impregnated fibre board
 - Standard: To Highways Agency 'Specification for Highway Works', clause 1015.
 - Thickness: 25 mm.
 - Depth: Joint filler board must extend from underside of sealing groove fillet to full depth of slab to provide complete separation of adjacent slabs.
 - Holes for dowel bars: Accurately bored or punched holes to form a sliding fit for dowel bars.
 - Completion: Round upper edges of slabs at joints to 5 mm radius. Do not overwork concrete.
 - BRUSHED FINISH
 - Direction: At right angles to longitudinal direction of the slab.
 - Texture depth: Approximately 1 mm with finished surface having an overall even texture.
- CURING/PROTECTION/FINISHING**
- CURING**
 - General: Immediately after completion of surface treatment prevent evaporation from surface and exposed edges of slabs for a minimum period of seven days.
 - Early curing:
 - Cover with waterproof sheeting held clear of surface. Seal against draughts at edges and junctions.
 - Do not apply sprayed compounds or sheets in direct contact until surface is in a suitable state and will not be marked.
 - Coverings for curing: Contractor's choice of:
 - Impervious sheet material.
 - Resin based aluminized curing compound containing a fugitive dye and with an efficiency index of 90% when tested to BS 7542.
 - Sprayed plastics film.
- PROTECTION**
 - Prevent damage to concrete:
 - From rain, indentation, physical damage, dirt, staining, rust marks and other disfiguration.
 - From thermal shock.
 - In cold weather, from freezing expansion of water trapped in pockets, etc.
 - By use as a building platform or for storing, mixing or preparing materials.
- OPENING TO TRAFFIC**
 - Light vehicles: 7 days after placing concrete.
 - Heavy vehicles: 28 days after placing concrete.



TIED JOINT INTO EXISTING SLAB
SCALE 1:10

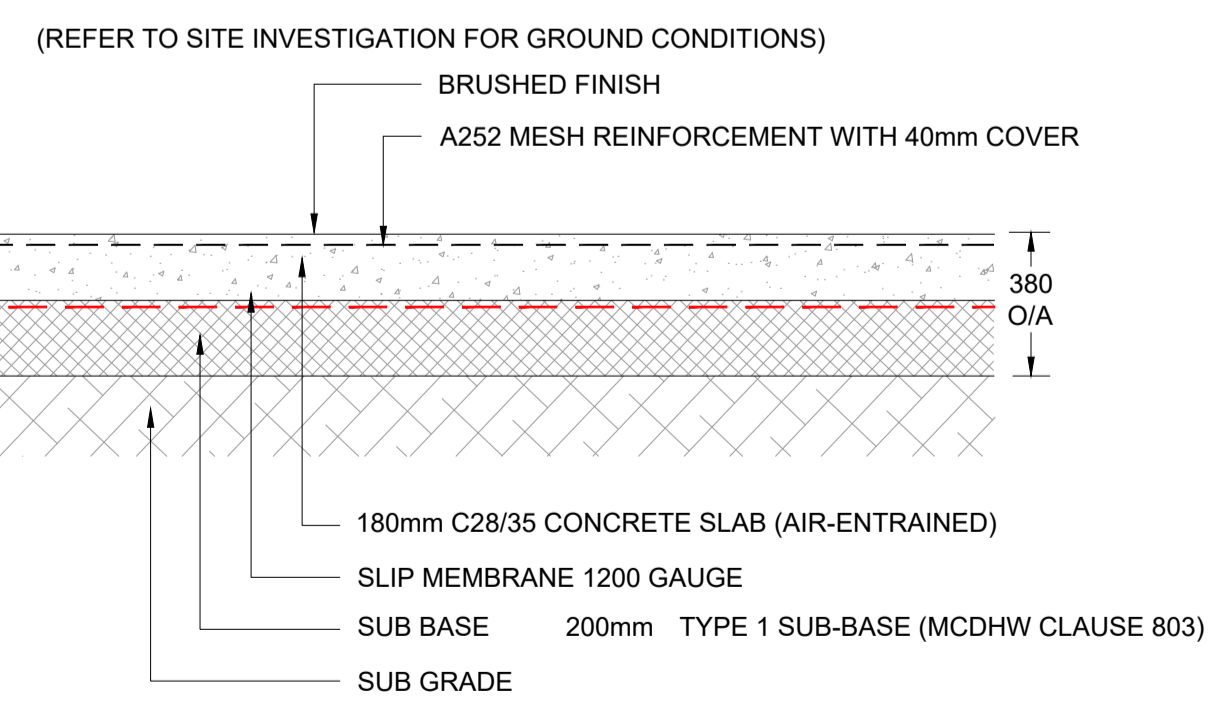


FREE MOVEMENT - EXPANSION JOINT
SCALE 1:10



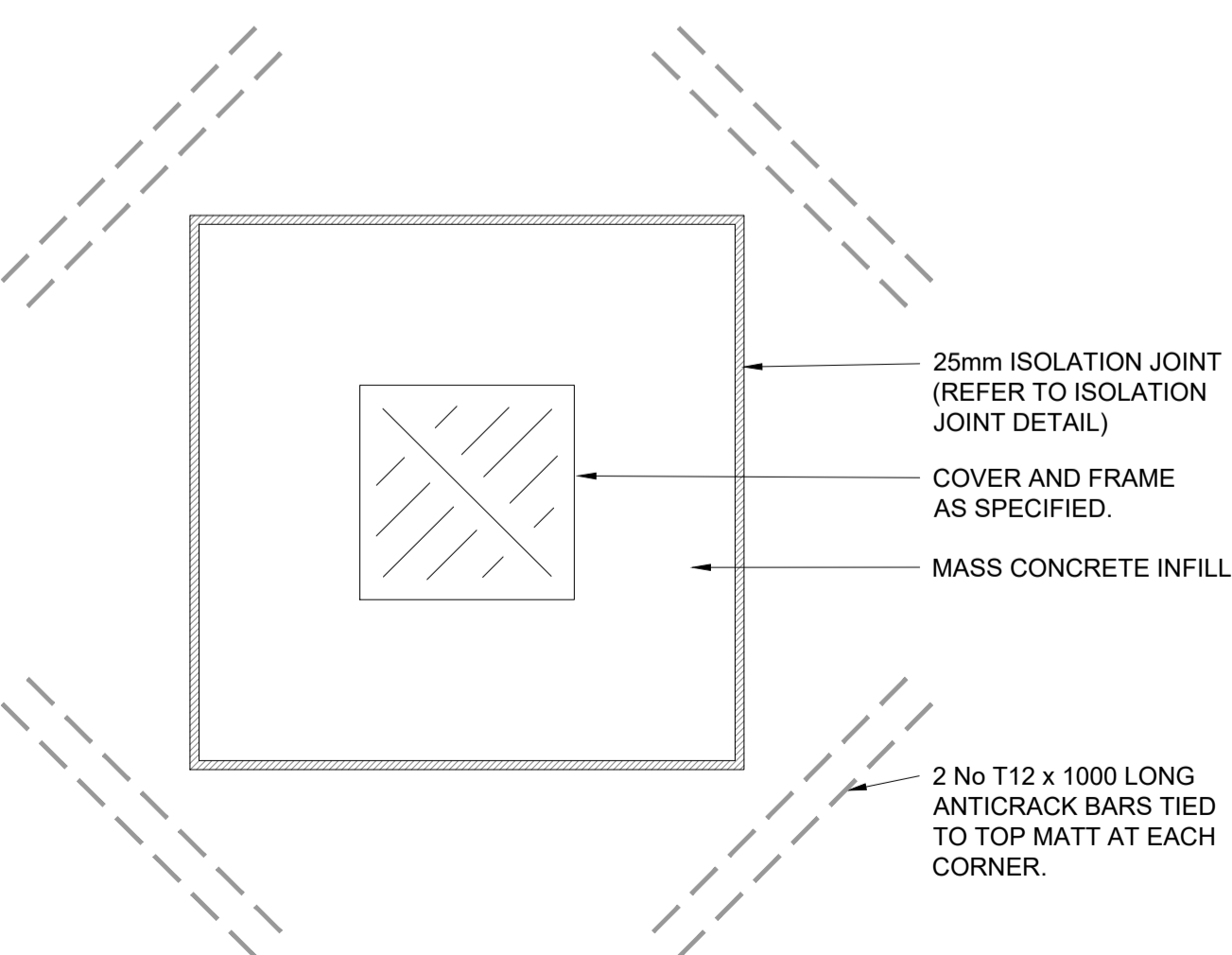
HAURATON RECYFIX STANDARD CHANNEL
SCALE 1:10

PAVEMENT BUILD-UPS ARE SUBJECT TO IN-SITU CBR TESTS AT SUB-GRADE LEVEL



NOTE: CONTRACTOR TO CONFIRM SUITABILITY OF EXISTING SUB-GRADE FOR RE-USE IN THE NEW WORKS ANY MADE GROUND TO BE REMOVED AND SOFT SPOTS IN-FILLED WITH WELL COMPACTED HARDCORE OR TYPE 1 AS REQUIRED. SUB-GRADE SHOULD ACHIEVE A MIN 3%.

TYPE C4: CONCRETE APRON CONSTRUCTION (Frequent Heavy Goods Vehicles)
SCALE 1:20



MANHOLE COVER DETAIL IN SERVICE YARD & ACCESS RD.
SCALE NTS

KEY PLAN

NOTES

- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
- The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
- Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
- CBR values in accordance with SI report, contractor to inform engineer of any soft spots during construction.
- In the event of any contradiction between this drawing and the specification, then the contractor shall seek clarification from the engineer before proceeding.
- All in-situ concrete and precast concrete components to be manufactured using sulphate resisting portland cement (srpc) to BS 4027, if required, subject to soil conditions.
- Refer to landscape architects drawings for extent of external surfaces and kerbing.
- Drainage trenches within traffic areas and footways or in areas to be adopted shall be backfilled using granular type 1 material up to the road formation level.
- Old drainage or service trenches to be excavated are to remove soft or degraded material and backfilled with specified granular sub-base material.
- Subgrade variation: if material appears to vary from anticipated conditions, or if there are extensive soft spots, test subgrade CBR to BS 1377-4 OR BS 1377-9.
- Soft or damaged areas to be excavated and replaced with sub-base material, compacted in layers 300 mm (maximum) thick.
- Final excavation to formation / subformation level to be carried before compaction of subgrade.
- Excavation or compaction not to be carried out in wet conditions when the subgrade may be damaged or destabilized.
- Compact thoroughly by roller or other suitable means, adequate to resist subsidence or deformation of the subgrade during construction and of the completed roads / pavings.
- Particular care to be taken when compacting fully at intrusions, perimeters and where local excavation or backfilling has taken place.
- Subgrade improvement layer (capping) to Highways Agency 'Specification For Highway Works', Table 6/1. Placed and compacted to Highways Agency 'Specification For Highway Works', Table 6/1, Clauses 612 and 613.3, 613.8, 613.9, 613.10 and 613.13.
- Depth of frost susceptible material below final surface of paving to be (minimum) 450mm.
- Do not place fill on frozen surfaces. remove material affected by frost. Replace and re-compact if not damaged after thawing.
- Subgrades and sub-base should be protected to prevent degradation by construction traffic, construction operations and inclement weather.
- Type 1 unbound mixture for sub-base to Highways Agency 'Specification For Highway Works', Clause 801 and 803.
- Type 1 to be spread and levelled in 150 mm maximum layers, each layer thoroughly compacted.
- At drainage fittings, inspection covers, perimeters and where local excavation and backfilling has taken place particular care should be taken to ensure material is fully compacted.

P01	SUITABLE FOR STAGE 3		
J.MAGEE	03/11/23	J.MAGEE	03/11/23

REV	REVISION NOTES/COMMENTS				
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

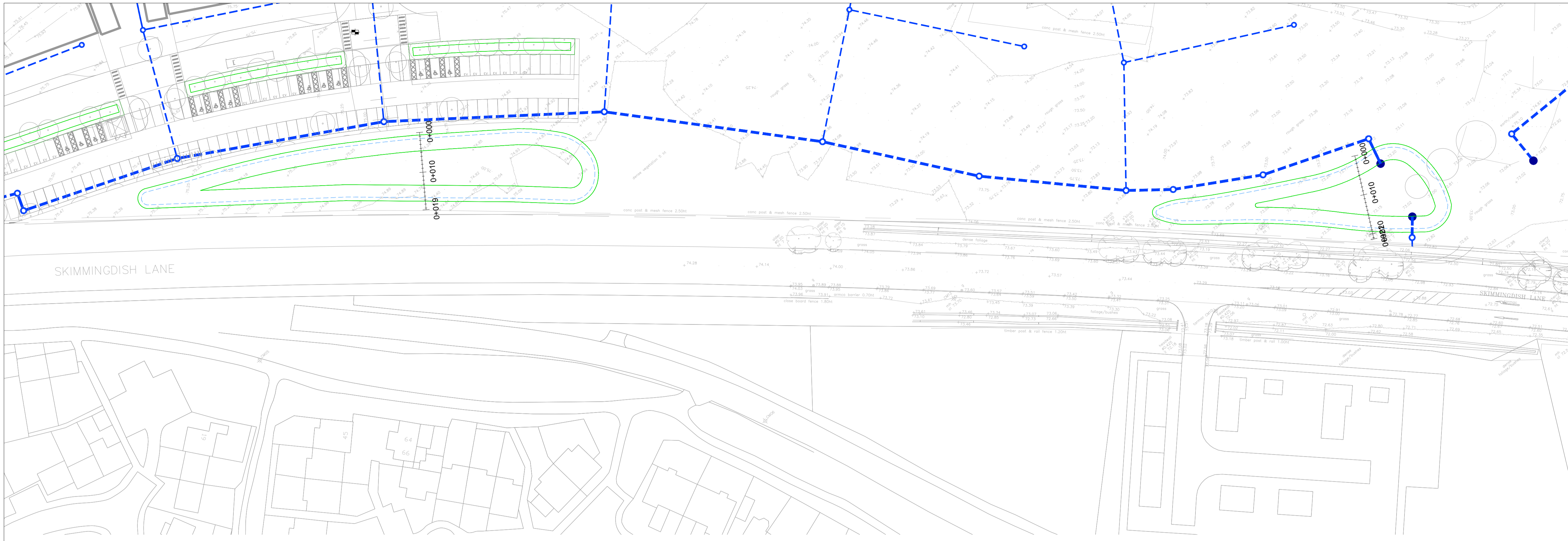
Hydrock Merchants' House North
Wapping Road
Bristol
BS1 4RW
t: +44 (0)117 945 9225
e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

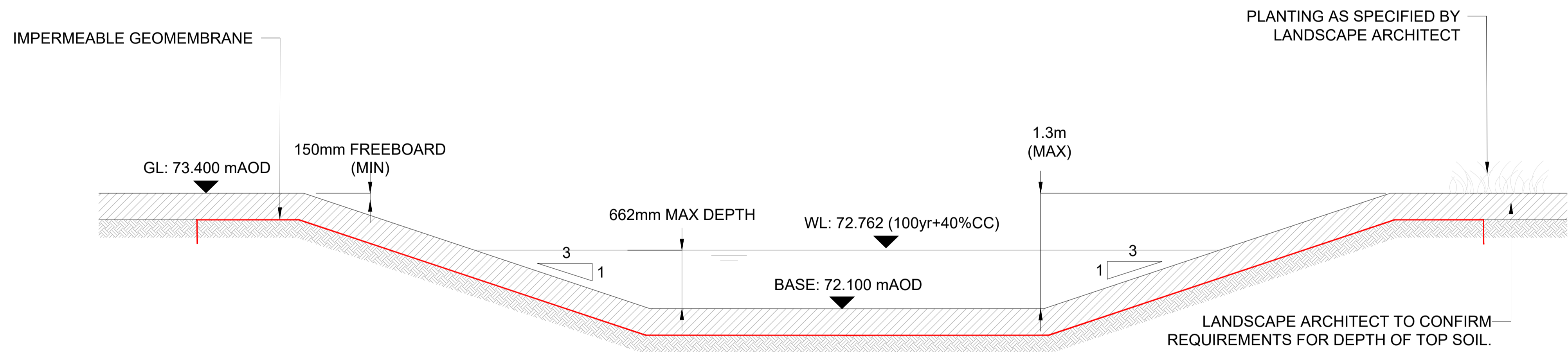
PROJECT
BICESTER MOTION

TITLE
EXTERNAL DETAILS

HYDROCK PROJECT NO. C-27280	SCALE @ A1 AS SHOWN
STATUS DESCRIPTION SUITABLE FOR STAGE 3	STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7301	REVISION P01



- KEY PLAN
- NOTES
- All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
 - The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
 - Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
 - All levels are shown in metres above Ordnance Datum (m AOD).



DRY BASIN - BA-01
SCALE 1:50

P01	SUITABLE FOR STAGE 3			
J.MAGEE	06/10/23	J.MAGEE	06/10/23	

REV	REVISION NOTES/COMMENTS				
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
SUDS DETAILS SHEET 1

HYDROCK PROJECT NO. C-27280	SCALE @ A1 NTS	STATUS DESCRIPTION SUITABLE FOR STAGE 3	STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-DR-C-7311		REVISION PO2	

Alignment - (7)

CHAINAGE (M)	05.000	10.000	15.000	20.000
EXISTING LEVELS REF: DS_PGL	73.100	73.100	73.660	
PROPOSED LEVELS REF: DS_PGL				
HORIZONTAL GEOMETRY REF: Alignment - (7)	L = 19.416			
VERTICAL GEOMETRY REF: Alignment - (7)	G = -32.496% L = 3.678	G = -0.000% L = 7.728	G = 32.362% L = 2.160	G = -10.857% L = 1.857

Alignment - (7) (1)

CHAINAGE (M)	05.000	10.000	15.000	20.000
EXISTING LEVELS REF: DS_PGL (1)	72.108	72.100	72.136	
PROPOSED LEVELS REF: DS_PGL (1)				
HORIZONTAL GEOMETRY REF: Alignment - (7) (1)	L = 21.352			
VERTICAL GEOMETRY REF: Alignment - (7) (1)	G = 11.673% L = 0.846	G = -31.673% L = 2.337	G = -0.000% L = 8.046	G = 28.459% L = 3.732

Appendix D – Overland Flow Routes



NOTES

1. All dimensions are to be checked on site before the commencement of works. Any discrepancies are to be reported to the Architect & Engineer for verification. Figured dimensions only are to be taken from this drawing.
2. The DWG file is issued for the purposes of coordination only and do not represent formal drawing issue and are not to be reprinted in any form. Formal issue of drawings is via DWF, Adobe PDF files and/or hard copies and their associated information issue sheets.
3. Note that all care has been taken with the export of DWG files and their content, but we recommend that you make due dimensional checks before using any DWG file information. Any errors found are to be reported to Hydrock immediately.
4. All levels are shown in metres above Ordnance Datum (m AOD).

LEGEND

→ → OVERLAND FLOW ROUTE



FOR INFORMATION					
J.MAGEE	24/11/23	J.MAGEE	24/11/23		

REVISION NOTES/COMMENTS					
DRAWN BY	DATE	CHECKED BY	DATE	APPROVED BY	DATE

Hydrock Merchants' House North
 Wapping Road
 Bristol
 BS1 4RW
 t: +44 (0)117 945 9225
 e: bristolcentral@hydrock.com

CLIENT
BICESTER MOTION LIMITED

PROJECT
BICESTER MOTION

TITLE
OVERLAND FLOW ROUTES

HYDROCK PROJECT NO. C-27280	SCALE @ A1 1:1000
--------------------------------	----------------------

STATUS DESCRIPTION FOR INFORMATION	STATUS S2
DRAWING NO. (PROJECT CODE-ORIGINATOR-ZONE-LEVEL-TYPE-ROLE-NUMBER) 27280-HYD-00-ZZ-SK-C-7730	REVISION PO1

Appendix E – Foul Pump Station Designs



Hydrock
3rd Floor, Merchants House North
Wapping Road
Bristol
Somerset
BS1 4RW

Tel No : 07436 021498 / 0117 945 9225
E-Mail : JasonMagee@hydrock.com

Attention of : Jason Magee

Dear Sirs,

Re : Bicester Motion Innovation Quarter, OX26 5HA

We thank you for your valued enquiry, and now have the pleasure of submitting our best offer for the most suitable equipment for the above scheme on a supply-only basis as detailed in the following.

1 No XL25000 Package Pumping Station Supply-Only Basis,

Please Note: In order to achieve the 5m depth to allow for storage between High Level Alarm & Top Water Level (as per Mike Scratchley's write-up), extension turrets & guide rails will be supplied loose to be fitted by site.

Packaged Pumping Station, incorporating 80 mm pipework and valves all assembled and housed in a strong GRP chamber, with a FACTA B (Up to 25 tonne GLVW) access cover.
A fully automatic control panel, activated by level switches complete with pump trip / high-level alarm with audio/visual warning are incorporated as standard.

Full details of our offer are included on pages 2 and 3 of our quotation, which is further supported by our Package Pumping Station literature.

The Package Pumping Station is supplied fully assembled and ready for installation on site. A detailed Installation Manual is supplied, allowing for easy installation by a competent builder or ground worker. The pumping station can be fully operable within a couple of days from delivery.

For the future we strongly recommend that you take advantage of our Service Agreement Scheme, to ensure that the pumping station has a long, trouble-free life. We are pleased to offer this at a fixed rate for the first 2 years, if the Service Agreement is taken out when the pumping station is ordered. For details see the separate Service quote, if you have not received this this can be requested separately.

We trust that our offer and enclosed information meet with your approval, and hope your interest will progress into a future order with T-T PUMPS, in the meantime if you have any queries or require any additional information, please contact the undersigned.

Yours faithfully,
T-T Pumps Limited

Nathan Robinson
Tendering Engineer
Tel - 01630 647200



Quotation
T-T PUMPS PACKAGE PUMPING STATION

Serving : Foul water, 3.8 l/s & 19.97m³ storage (between HLA - TWL) requested

Pump Duty: Flow 3.81 l/s
Total Duty Head 17.18 metres

Pump: Qty 2
Model ZUG V080A 5,5/2AW 140 Motor Submersible
80mm Solids Handling
kW Rating 5.50 kW FLC Amps: 10.2 Voltage: 400 Phase: 3
Cable Length 10 m
Operation Mode Auto (duty/standby)

Controls: IP54 Steel enclosure c/w run/trip indicators, pump trip / high-level warning alarm & volt free contacts
Not suitable for outdoor use unless installed within a kiosk please see optional extras
Where the control panel and associated equipment offered is on a supply-only basis, it is the requirement of the purchaser to ensure the completed electrical installation meets the requirements of BS7671 latest edition
Level Control 3 No Float Switches Cable Length: 10 m

Chamber : Model **XL25000** Product Reference :- PP/ **XL25000**

Internal Diameter 2.200 metres
Internal Chamber Depth 2.600 metres (Including pump sump)
Total Depth 5.000 metres (including extension turrets included in with price)
Internal Length 7.050 metres
Inlet Size 150 mm I/D 160 mm Outside Diameter

Chamber Pipework: 80 mm

Valves: Gate Valve 80 mm
Reflux Valve 80 mm

Access Cover: Size mm 1 No. 1550 x 1000 (main access) & 1 No. 600 x 600 (maintenance access)
Loading FACTA B (Up to 25 tonne GLVW)
Suitable for: Pedestrian precincts, forecourts, light commercial delivery and parking areas

Outlet Pipework (not included, for provision by others)

Recommended Rising Main : 79 mm Inside Diameter Black HPPE (PE100) SDR 17
Size of HPPE adaptor : 90 mm Outside Diameter

Pumping Station Pipework Termination Point : 90 mm HPPE Adapter (included)

Unit Price for Supply Only : **£28,094.17** Net + VAT at prevailing rates where applicable.
Delivery Period (Chamber) **8 to 10** Weeks from order acceptance (subject to credit/payment terms)
Delivery Period (Pumps) **10 to 12** Weeks from order acceptance (subject to credit/payment terms)
Carriage: **Included** All deliveries are to be offloaded by the client.
Extra for M & E Commissioning: **£850.00** Net + VAT (Based upon a Single Specific Visit)

Extras: Weatherproof Control Kiosk £895.00 Net + VAT at prevailing rates where applicable.
1250 H x 750 W x 400 D for a Single Door GRP Kiosk. (Green)
160 mm Inlet Assembly £220.00 Net + VAT at prevailing rates where applicable.

Maintenance and Monitoring: -

Service and Maintenance Agreement = £340.00
(This price is per service based upon one annual service for domestic clients, or two visits for larger schemes)

Seer Junior Telemetry Rental = **£75.00 Net Per Month** (Billed annually, unless quarterly invoicing requested - minimum 2-year contract applies).

Seer is TT's market-leading telemetry system to compliment your Service and Maintenance agreement. (service agreement must be in place)

- Cloud-based monitoring.
- Remote system access and fault diagnosis.
- Remote system reset, correct faults quickly and avoid unnecessary call-out charges.
- Real time data log, often highlighting issues before they happen.
- Circa 75% of faults reset remotely, avoiding unnecessary labour and tankering costs.
- **For more information, please see our YouTube video:** <https://youtu.be/vno9aTFxjio>

(The rental price includes a cloud subscription, a sim card and monitoring of the pumping station in a single monthly price.

A 2-year minimum contract applies. Purchase options are available on request. Remote reset functionality needs to be via a compatible control system).

Quotation
T-T PUMPS PACKAGE PUMPING STATION



Exclusions :

- a) Civil works relating to the installation of the package pumping station.
- b) Excavation / Backfilling .
- c) Pipework connection outside of package pumping station.
- d) Installation / Commissioning.

Notes :

- 1) The above prices are net and do not include for any main contractor discounts or retentions.
- 2) T-T PUMPS does not accept liquidated damages.
- 3) A comprehensive Installation Manual is provided, any requirement beyond the standard Conditions of Contract must be specifically agreed upon with T-T PUMPS, and confirmed in writing.
- 4) The cable lengths offered for the pumps and level control will allow the control panel to be sited a maximum distance of 1.5 metres from the pump chamber, with the control panel positioned not more than 1.5 metres above the cover level, having the cable ducting running in the most direct route.
If you have doubts about the cabling requirements please contact us and we will be happy to assist.
- 5) The pump offered are designed to transfer bodily waste, toilet paper and household wash waters only. Sanitary towels, condoms, cotton wool and other such items should not enter the pumping station.

Validity: Our offer is open for acceptance for an initial period of 30 days from the date of quotation. However, we reserve the right to review our quotation price post order considering both time elapsed between order placement, scheduled works / call off period and also taking into account any key material market price changes.

Terms: Terms and Conditions of Sale are available on our Website (www.ttpumps.com) or by request For any onsite works a notice of cancellation must be provided at least 48 hours in advance; otherwise, all expenses and fees will remain applicable.

Storage and Retention:

**We can confirm that our offer complies with the storage requirements of current building regs assuming that the Top Water Level of 71.06m AOD is the first point of overflow.
Storage offered between High Level Alarm & Top Water Level.**

If you have a specific retention requirement other than that which we have confirmed as above, please confirm the details of your requirements and we shall revise our offer where possible to suit.

Design Statement:

Please note that as part of this quotation, we endeavour to include all design features as per your request. If however we have failed to include a specific requirement within our quotation that you do require, please confirm so by return so that the quotation can be quickly revised. Any items not included for within this quotation will be fully chargeable should they be required at a later date.

Discharge Consent:

Prior to order, please ensure that you have raised the appropriate sewer connection application with your local water authority to confirm that the flow rate proposed from this pumping station design is acceptable should the system be discharging into an existing sewer network.

We endeavour to offer the correct pumping station design for the application, however your local water authority may apply flow rate restrictions which in turn will affect the pumping station design.

TT will not accept or reimburse any costs should you choose to install a pumping station at your own risk, without the necessary consent in place.

Septicity:

Steps have been taken within this design to keep the risk of septicity occurring to a minimum. Our calculations are based upon the information provided at the enquiry stage, additional septicity control methods are available should this be of interest to you.

Warranty

All T-T package pumping stations come complete with manufacturers comprehensive 12-month warranty which will run from the date that the system is delivered to site, or from the date of commissioning should T-T complete this element of the installation.



Key Features

A Single Sourced Engineered Product.

T-T PUMPS offers a single source for your pumping system needs, with expertise in pumping system design, which is further supported by T-T Controls, our controls division and Aquaflow our valve and pipework division.

Our in-house capability ensures that we can respond quickly and high-quality levels are maintained.

Chamber

Each chamber is made from strong GRP. The smooth internal walls aid the hygienic disposal of effluent, to avoid smells and septicity.

Pumps

High-reliability pumps are selected from our extensive range and chosen on the basis that the pumps are the best selection for each specific application with an emphasis on efficiency and reliability.

Controls

All control panels are specifically designed and manufactured in-house incorporating the latest technology.

Standard features such as door interlocked mains isolator, suitable for incoming 25mm meter tails, running, tripped and high-level indication, automatic duty cycle rotation (on dual stations only) and volt-free status contacts for use with remote monitoring are all standard incorporated features.

Technical Support

Product Selection

Our trained and experienced engineers aim to select most effective and efficient products for your application and will assist you throughout the installation of your pumping station.

Installation

Special Consideration has been given to ease of installation and making good positive connections for the gravity drainage pipework.

Every pumping station is provided with 2 comprehensive installation manuals which give a straightforward guide, allowing the builder rapid installation.

Commissioning

You may require to use the services of commissioning engineers who will check the installation and put the pumping station into operation.

After Sales

Full After Sales Service is available, including our planned maintenance Service Agreement Scheme.

Insurance and Collateral Warranty

TT holds insurance to cover Employer's Liability (£10m), Public and Products Liability (£10m), Contract Works (subject to the claim) and Professional Indemnity (£5m). A copy of our insurance certificate is available on request.

Please note our insurance levels are fixed and valid for the certificate duration, yet any further requirements over and above our insurance, including collateral warranties, associated documentation/wording of that required must be submitted and agreed/approved with TT prior to order placement.

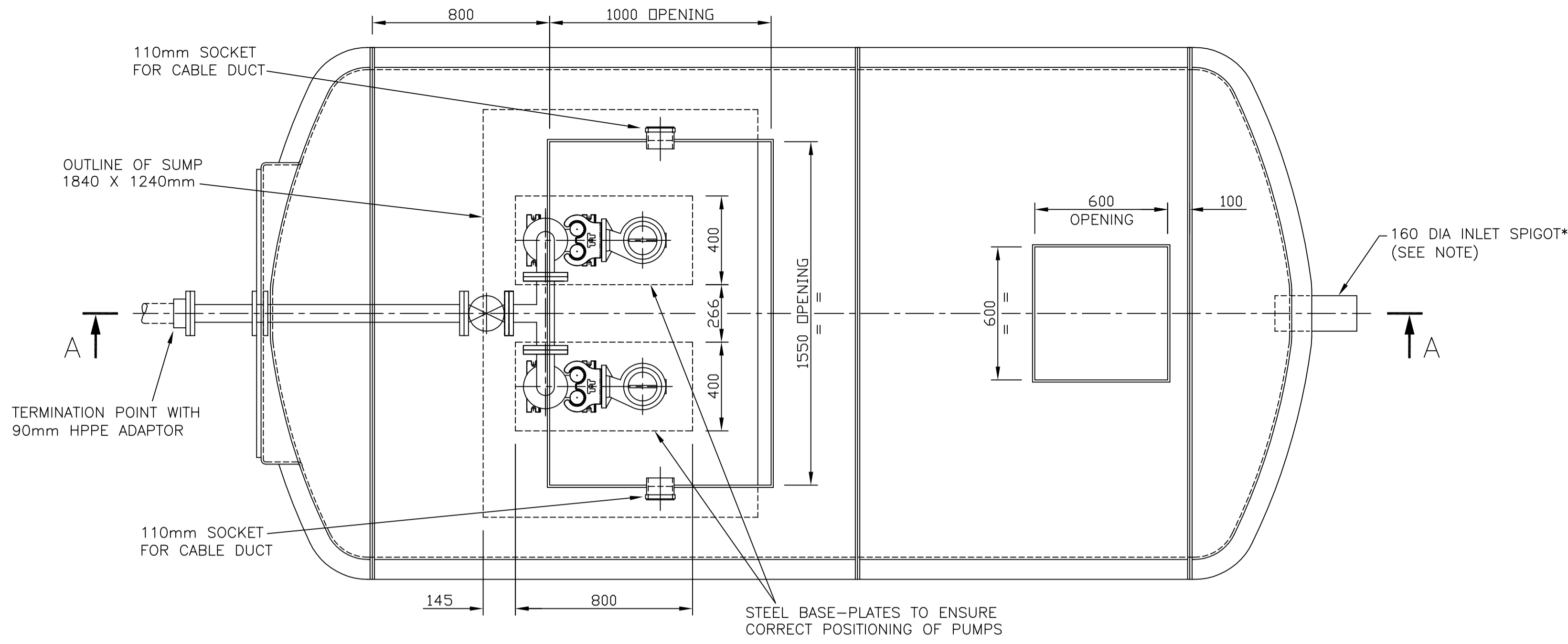


T-T Pumps Ltd, Onneley Works, Newcastle Road, Woore, Cheshire, CW3 9RU, United Kingdom

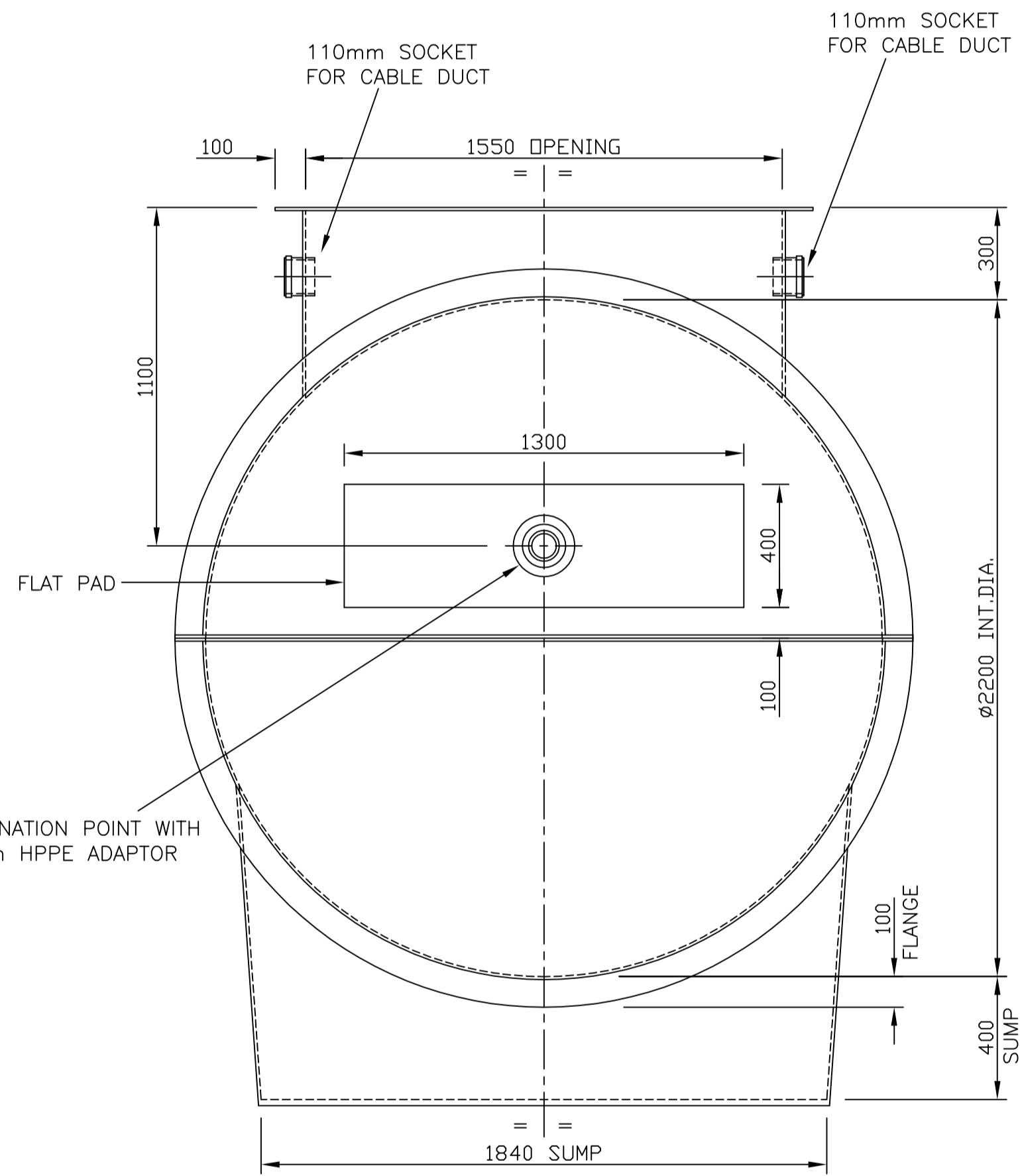
Tel: +44 (0) 1630 647200 Fax: +44 (0) 1630 642100 www.ttpumps.com Email: response@ttpumps.com

T-T Controls, T-T Flow Valves, T-T Pumping Stations, T-T Environmental & Agricultural and T-T Service Division of T-T PUMPS Ltd. T-T PUMPS Ltd: Registered in England & Wales Reg. No 2320012

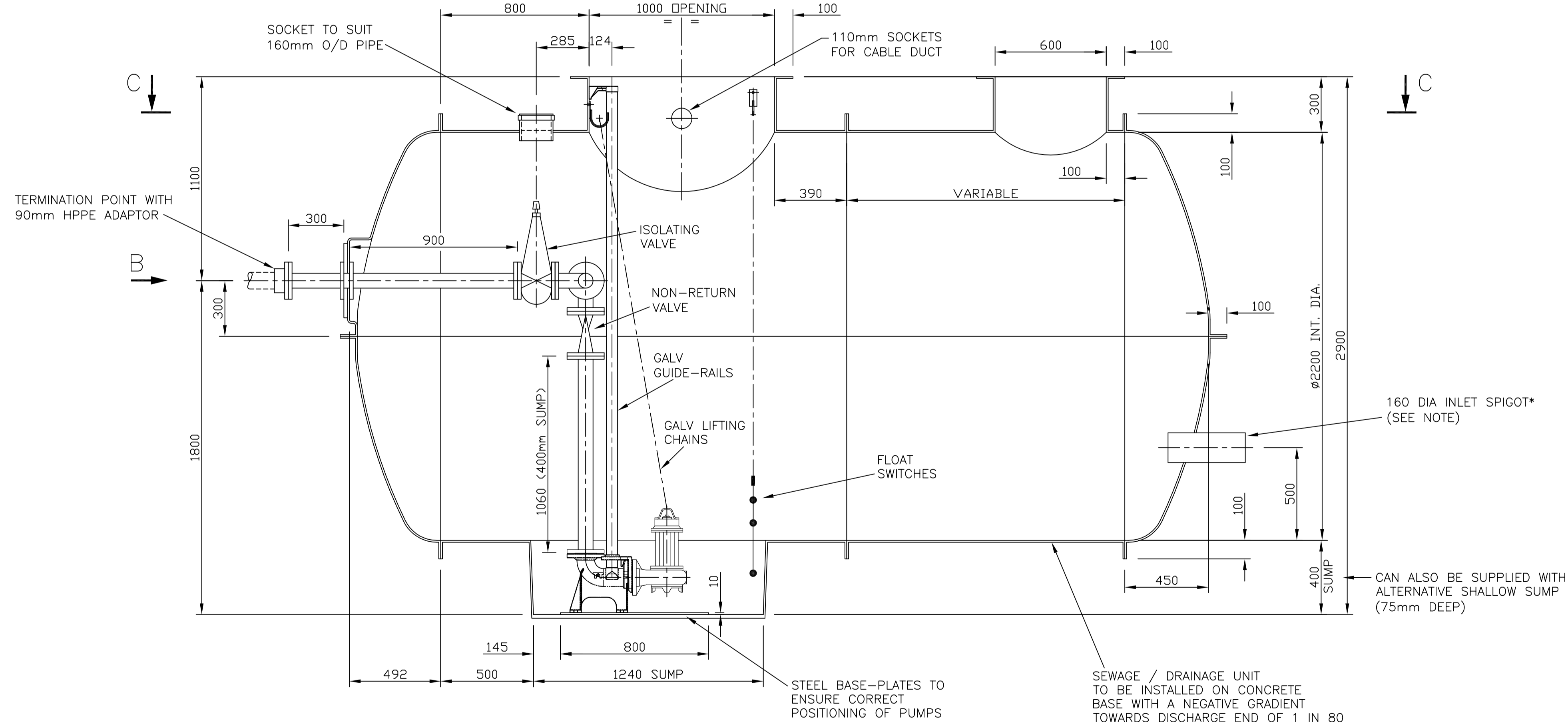
* INLET CONNECTIONS CAN BE POSITIONED AT 500mm FROM THE BASE ANYWHERE AROUND THE CHAMBER, AS SPECIFIED BY CLIENT



SECTIONAL PLAN ON 'C-C'



END ELEVATION ON ARROW 'B'



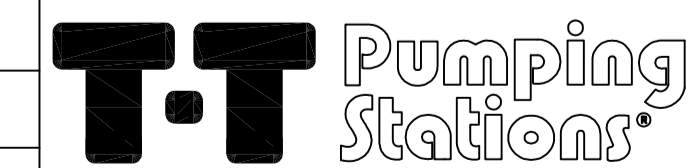
SECTIONAL ELEVATION ON 'A-A'

F	CHANGED TO NEW T-T PEDESTAL	DCC	JPW	13.10.22
E	AMENDED TO SUIT THE NEW STYLE DUCKFOOT	HJW	JPW	25.06.20
D	GRP TANK AMENDED TO MANUFACTURER'S DETAILS	DCC	DJP	24.08.11
C	FROM EDGE OF CYLINDRICAL TANK TO INTERNAL SIDE OF BULL NOSE IS '495mm'	MWB	TRP	07.10.08
B	DEPTH OF PUMP SUMP REDUCED & CABLE DUCT SKT ADDED, BASEPLATE HOLES REDUCED TO M12	MWB	TRP	06.10.08
A	DWG NUMBER AMENDED & SUMP DETAIL ADDED	MWB	TRP	03.03.08
ISSUE	AMENDMENTS	DRAWN	APPROV.	DATE

TITLE XL PLANET RANGE SEWAGE & STORMWATER PUMPING STATIONS
 ø2.2 CHAMBER T-T SEWAGE / DRAINAGE STORAGE STATION
 1No. 80NB DISCHARGE PIPE

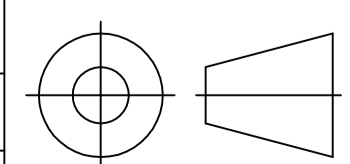
DRAWN BY	M.W.B
APPROVED BY	B.N
DATE	01/11/07
ORIGINAL SCALE	1:33.3

© Copyright T-T PUMPS Ltd. 2020



Onneley Works, Newcastle Road,
 Woore, Cheshire, CW3 9RU ttpumps.com

+44 (0) 1630 647200



THIS DRAWING IS THE PROPERTY OF T-T PUMPS LTD. IT MUST NOT BE COPIED, LOANED OR TRANSFERRED, NOR INFORMATION CONTAINED HEREIN BE TRANSFERRED TO A THIRD PARTY WITHOUT WRITTEN CONSENT OF T-T PUMPS LTD.
 ENSURE THAT THIS IS LATEST ISSUE
 DIMENSIONS IN mm UNLESS STATED OTHERWISE
 DO NOT SCALE IF IN DOUBT ASK TOLERANCE EXCEPT WHERE OTHERWISE STATED ± 0.5mm

PROJECT No	DRAWING No	ISSUE	SHEET 1
STD	PP/9310/F		OF 1