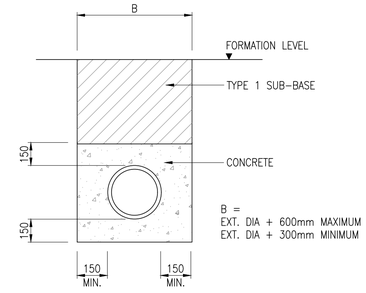


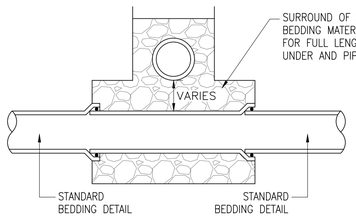
CLASS 'S' BEDDING DETAIL

TYPE 'S' BEDDING TO BE USED FOR PIPES GENERALLY IN FOOTWAY AND LANDSCAPED AREAS, AND FOR PIPES UNDER TRAFFICKED AREAS WITH MORE THAN 1.2m COVER



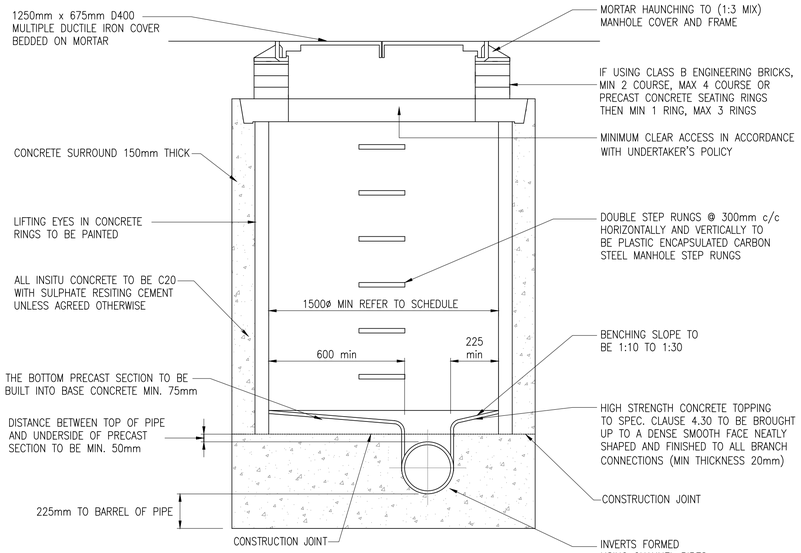
DETAIL OF CLASS 'Z' CONCRETE SURROUND

(FOR PIPES UNDER TRAFFICKED AREAS WITH <1.2m COVER)

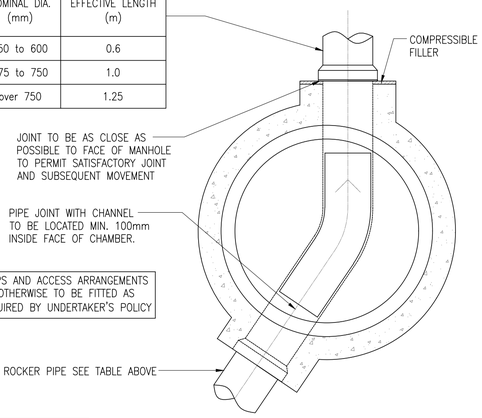


PIPE CROSSINGS OVER

STANDARD MIX	GRADE OF CONCRETE	APPLICATIONS
ST1	C7.5	FILLINGS, BLINDINGS, SOFT SPOTS AND DRAINAGE SUMPS
ST4	C20	ALL OTHER APPLICATIONS



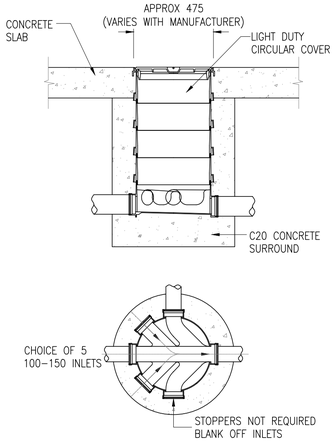
NOMINAL DIA. (mm)	EFFECTIVE LENGTH (m)
150 to 600	0.6
675 to 750	1.0
over 750	1.25



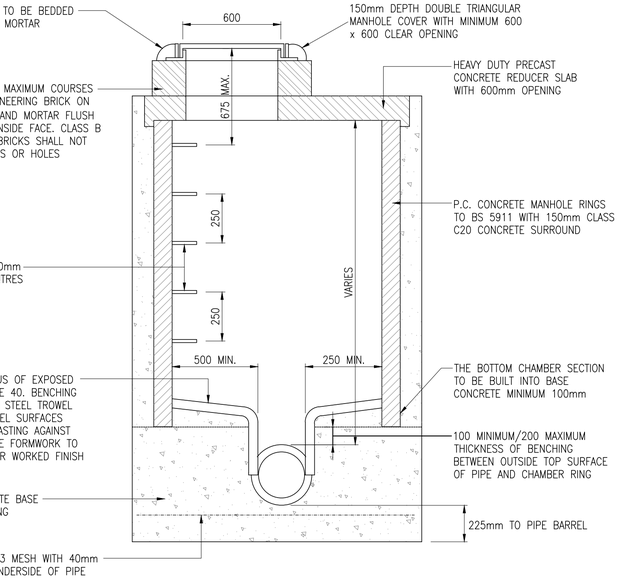
TYPICAL MANHOLE TYPE C

(MAX. DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 1.0m – 1.6m)

MIN. BENCHING WIDTHS TO LANDING SIDE OF MANHOLE	
PIPE ø	MIN. BENCHING
400 & BELOW	600mm
450 – 700	750mm
750 & ABOVE	1100mm



POLYPROPYLENE INSPECTION CHAMBER DETIALS

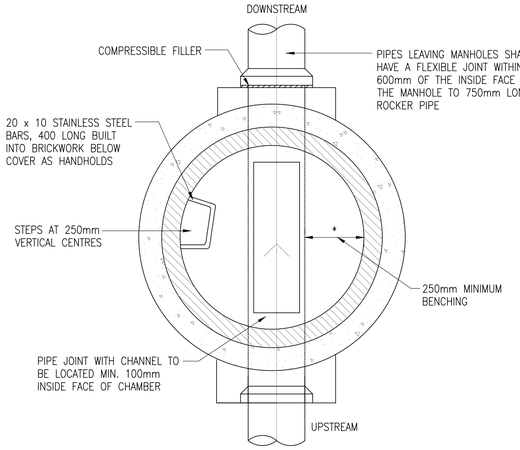


GENERAL NOTES

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN
2. ALL ADOPTABLE DRAINAGE SHALL BE CONSTRUCTED IN ACCORDANCE WITH 'SEWERS FOR ADOPTION' 6TH EDITION 3. 4. 5. 6. 7. 8. 9. 10. 11.
3. ALL EXISTING INVERT LEVELS TO BE CHECKED BY THE CONTRACTOR AT THE START OF WORKS AND ANY OTHER DISCREPENCIES NOTIFIED TO THE ENGINEER. ALL LEVELS ARE BASED ON TOPOGRAPHICAL SURVEY INFORMATION PROVIDED BY OTHERS.
4. ALL MATERIALS TO BEAR THE RELEVANT B.S. KITEMARK AND COMPLY FULLY WITH THE SPECIFICATIONS. ALL CONCRETE & CONCRETE PRODUCTS MUST USE SULPHATE RESISTANT CEMENT (UNLESS THE SITE INVESTIGATION REPORT PROVES THAT SULPHATE ATTACK FROM SOILS AND GROUNDWATER WILL NOT OCCUR TO WITHSTAND A CLASS 3 CONDITION).
5. ALL OPENING NOTICES ETC. AS REQUIRED UNDER HIGHWAYS ACTS ETC. ARE TO BE OBTAINED PRIOR TO COMMENCEMENT OF WORKS. ALL WORKS ARE TO BE INSPECTED BY L.A., NHBC OR UNITED UTILITIES AS APPLICABLE.
6. WHERE "ULTRA RIB" UPVC PIPES (OR SIMILAR APPROVED) ARE USED IN ADOPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAID IN ACCORDANCE WITH THE SPECIFICATION AND GUIDANCE ISSUED BY THE HIGH PERFORMANCE PIPE ASSOCIATION. A CLASS S BED AND SURROUND MUST BE USED FOR SUCH PIPES.
7. TRENCH BACKFILL IN HIGHWAYS / CAR PARKS TO WITHIN 1M OF HIGHWAY SHALL BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 3.3.4. BACKFILL MATERIAL IN OTHER AREAS SHALL BE SELECTED EXCAVATED MATERIAL FREE FROM STONES LARGER THAN 40MM, LUMPS OF CLAY OVER 100MM, TIMBER, FROZEN MATERIAL OR VEGETABLE MATTER.
8. UPVC PIPES AND FITTINGS SHALL COMPLY WITH WIS 4–35–01. CLAY PIPES AND FITTINGS SHALL BE EXTRA STRENGTH TO BSEN 295 AND BS 65. CONCRETE PIPES AND FITTINGS SHALL COMPLY WITH BS 5911 , PIPES SHALL BE CLASS H.
9. A CLASS S BED MUST BE PROVIDED TO UPVC PIPES , A CLASS B BED MAY BE USED FOR V.C. AND CONCRETE PIPES.
10. INSPECTION CHAMBERS SHALL BE:

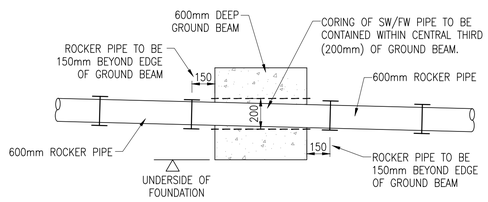
 TYPE A – 250mmø UPTO 0.6m DEEP (GARDEN DRIVE AREAS ONLY)
 TYPE B – 450mmø 0.6 – 1.5m DEEP (GARDEN DRIVE AREAS ONLY)
 TYPE C – 1200mmø 1.2 – 3m DEEP
 TYPE D – 450mmø WITH 350mm CATCHPIT

11. BACKFILL TO DRAINAGE TRENCHES ABOVE PIPE BEDDING AND SURROUND WITHIN ROAD AND CAR PARK AREAS TO BE GRANULAR FILL COMPLYING WITH CLASS 6F2 OR DOT TYPE 1 OR QUARRY SCALPING GRADED FROM 75mm DOWN.
12. A CONCRETE SURROUND IS NOT NORMALLY REQUIRED TO MANHOLES UNLESS INSTALLED IN AREAS OF UNSTABLE GROUND. UNDER CONDITIONS OF FLOATATION OR WHERE SUBJECTED TO EXCEPTIONAL OR ECCENTRIC LOADS, IN WHICH CASE A 150mm SURROUND OF AT LEAST 20N/mm2 CONCRETE SHOULD BE PROVIDED. ANY JOINTS SHOULD BE STAGGERED WITH THE PRECAST CONCRETE JOINTS.
13. DOUBLE STEPS SHALL BE PLASTIC ENCAPSULATED CARBON TO BS EN 1247–2 MANHOLE STEPS. STEP IRONS AT 300ctrs. HORIZONTALLY & VERTICALLY MAY BE USED AS AN ALTERNATIVE TO DOUBLE STEPS.
14. ALL WORK TO BE IN ACCORDANCE WITH "SEWERS FOR ADOPTION SIXTH EDITION" AND UNITED UTILITIES WATER PLC's STANDARD CONSTRUCTION DETAILS

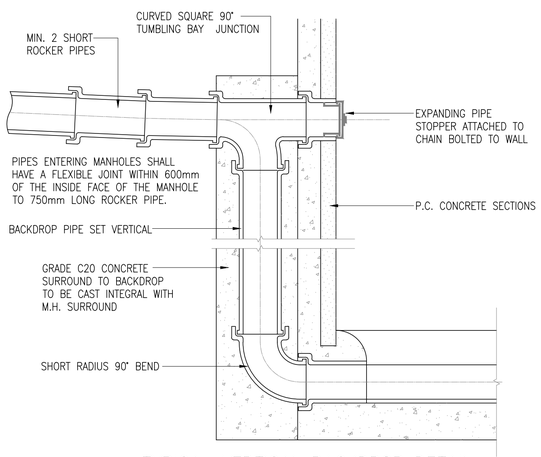


TYPICAL MANHOLE TYPE B

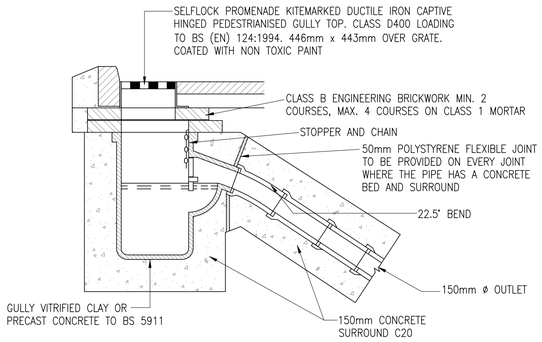
(MAX. DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 3.0m)



DETAIL SHOWING SW/FW PIPE THROUGH GROUND BEAM



TYPICAL VERTICAL BACKDROP DETAIL

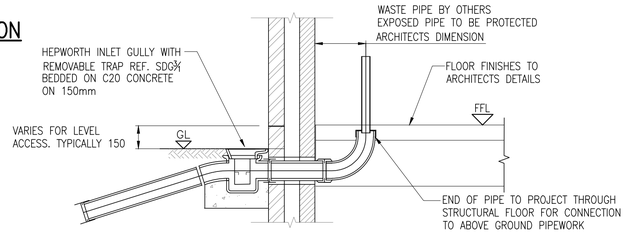


GULLY GRATING AND FRAME TO BS EN 124 CLASS D (40 TONS)

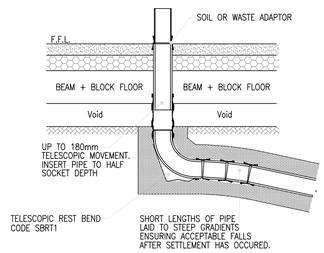
SIZE OF GULLY (mm)	GULLY FRAME MIN.WIDTH	MIN.AREA OF WATERWAY	MIN.DEPTH OF FRAME
450x900 DEEP	450mm	900cm²	75mm

NOTES
1. GULLY, GRATING AND FRAME TO COMPLY WITH BS EN 124
2. BACKFILL TO GULLY CONNECTIONS BELOW FORMATION IN CARRIAGEWAYS SHALL BE TYPE 1 SUB-BASE MATERIAL. WHERE MECHANICAL COMPACTION IS IMPRACTICAL THE BACKFILLING SHALL BE GRADE C10P/20 CONCRETE.
3. GULLY GRATING AND FRAME TO BE HINGED TYPE.

TYPICAL ROAD GULLY DETAIL



BACK INLET GULLY FOR WASTE PIPE



TYPICAL TELESCOPIC REST BEND CONNECTION DETAIL

(FOR BUILDINGS WITH FOUR OR MORE STOREYS)

C02 (CR)	19.11.2021	FINAL ISSUE CONSTRUCTION INTENT	JPR	PL	PL
C01	09.07.2021	ISSUE FOR CONSTRUCTION	MH	PL	PL
P02	19.04.2021	PRELIMINARY - UPDATED TO SUIT REVISED DRAWING NUMBERS	JRS	PL	PL
P01	01.04.2020	PRELIMINARY - FOR DISCHARGE OF PLANNING CONDITIONS ONLY	JRS	JMM	JMM
REV	DATE	DESCRIPTION	BY	CHK	APP

DRAWING STATUS: **CONSTRUCTION RECORD**

CLIENT: THE CHRISTIE NHS FOUNDATION TRUST

ARCHITECT: IBI GROUP

PROJECT: THE CHRISTIE
P22 TIERED CAR PARK

TITLE: BELOW GROUND DRAINAGE
TYPICAL DRAINAGE DETAILS - SHEET 1 OF 2

STATUS:	PROJECT No.	PROJECT	ORIGINATOR	VOL/SYS	LEVEL	TYPE	ROLE	DRAWING No.	REV:
S2	218-310	TCP -	AJP -	XX -	XX -	DR -		**C - 900101**	**C02**

SCALE @ A1:	DESIGNED:	DRAWN:	CHECKED:	APPROVED:	DATE:
N.T.S	JRS	JRS	JMM	JMM	APR 2020

AJP consulting engineers
est. 1976
0151 227 1462 info@ajpltd.co.uk 91 Dale Street, Liverpool, L2 2ET