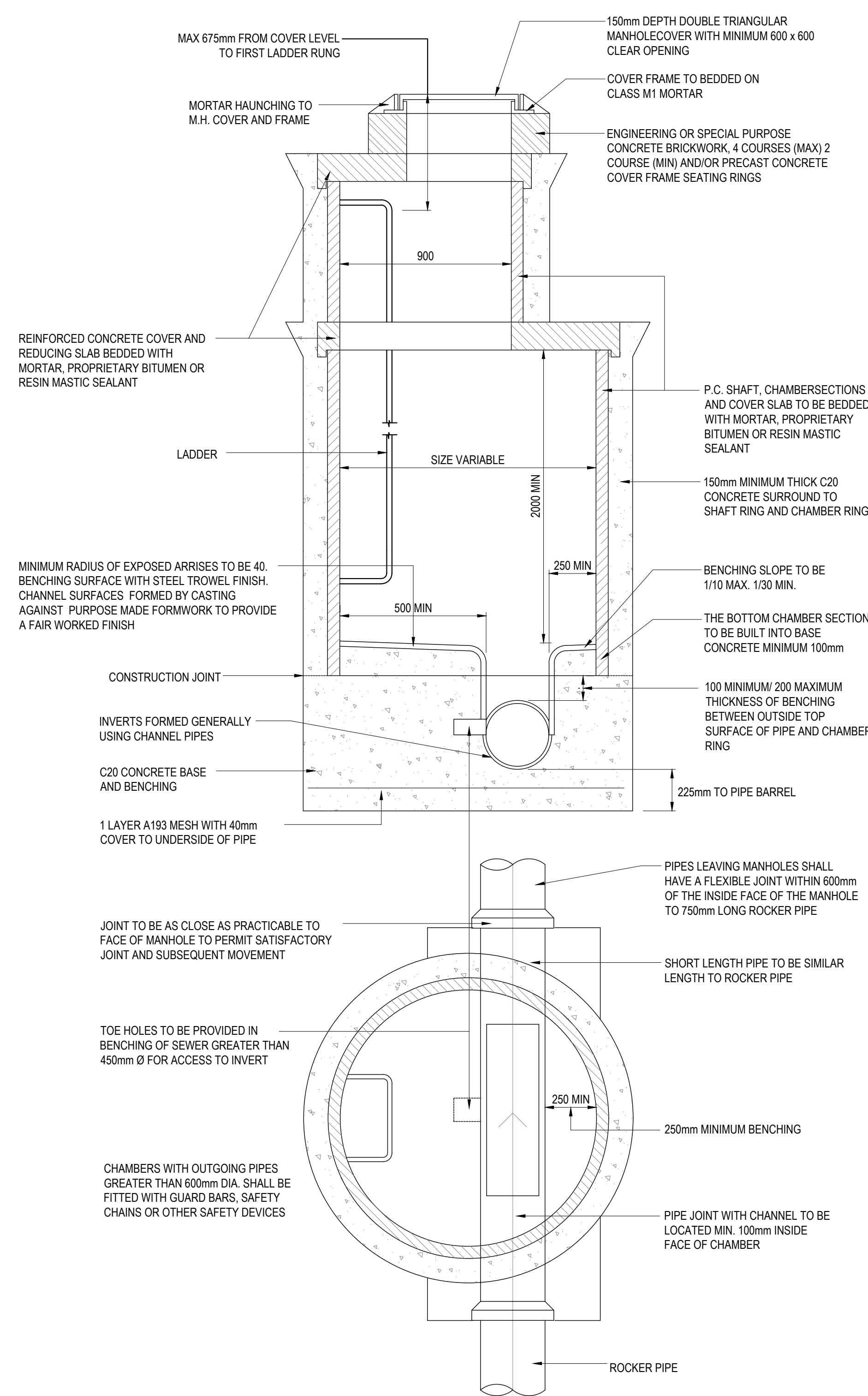
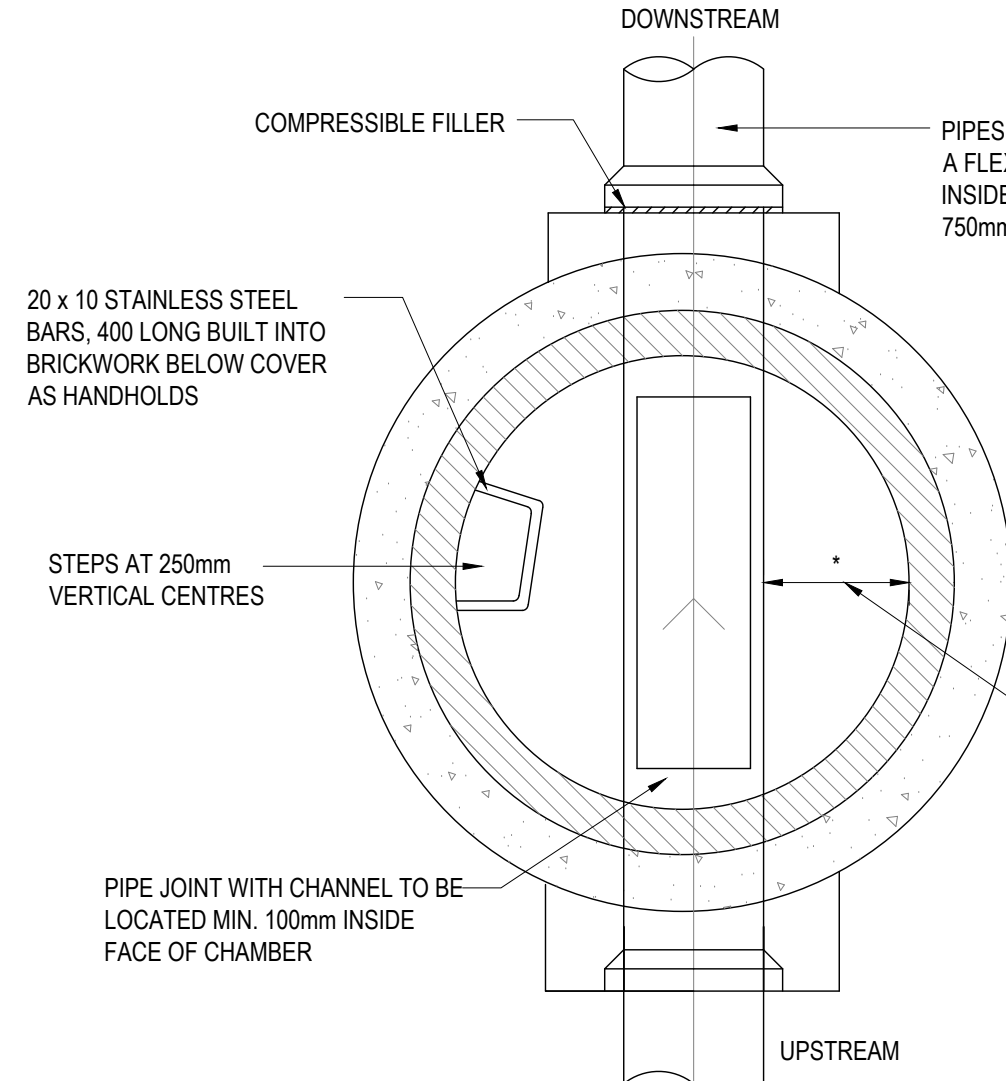
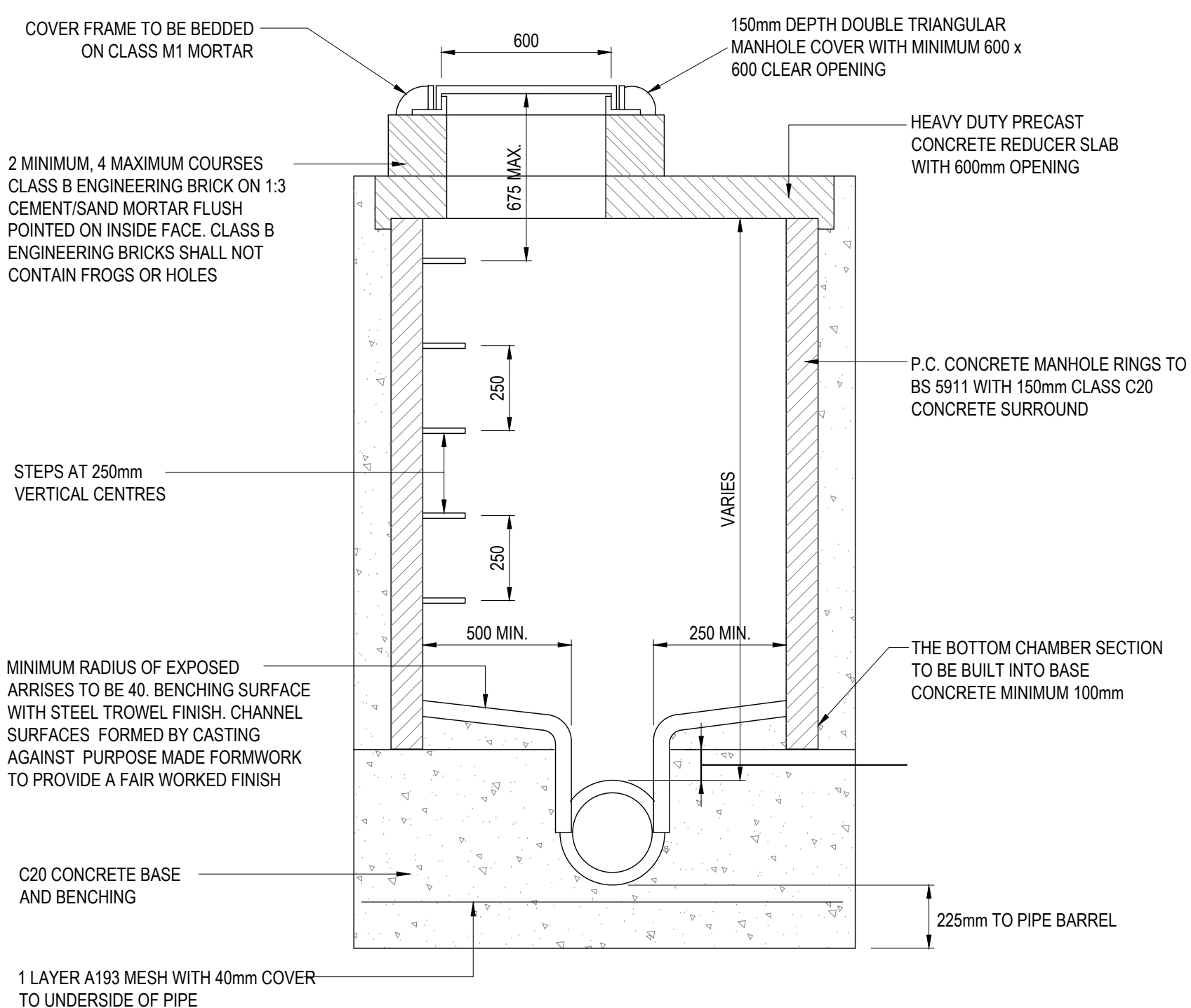




TYPICAL MANHOLE TYPE 1
(DEPTH TO SOFFIT 3-6m)



TYPICAL MANHOLE TYPE 2
(MAX. DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 3m)

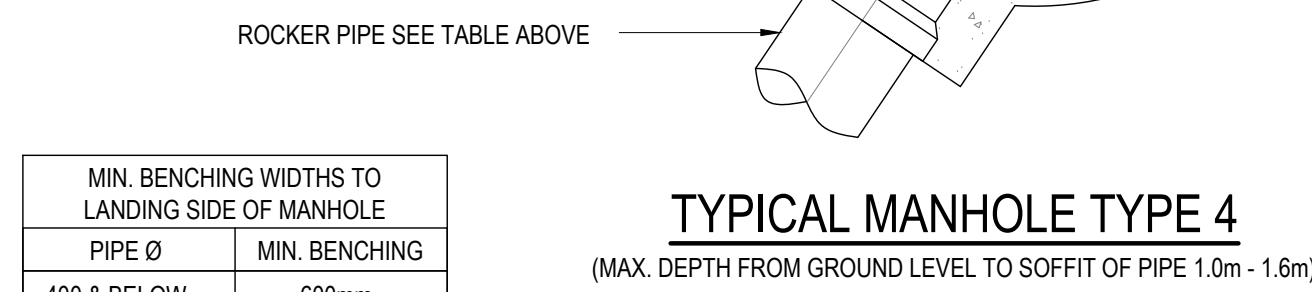
NOMINAL DIA. (mm)	EFFECTIVE LENGTH (m)
150 to 600	0.6
675 to 750	1.0
over 750	1.25

JOINT TO BE AS CLOSE AS POSSIBLE TO FACE OF MANHOLE TO PERMIT SATISFACTORY JOINT AND SUBSEQUENT MOVEMENT

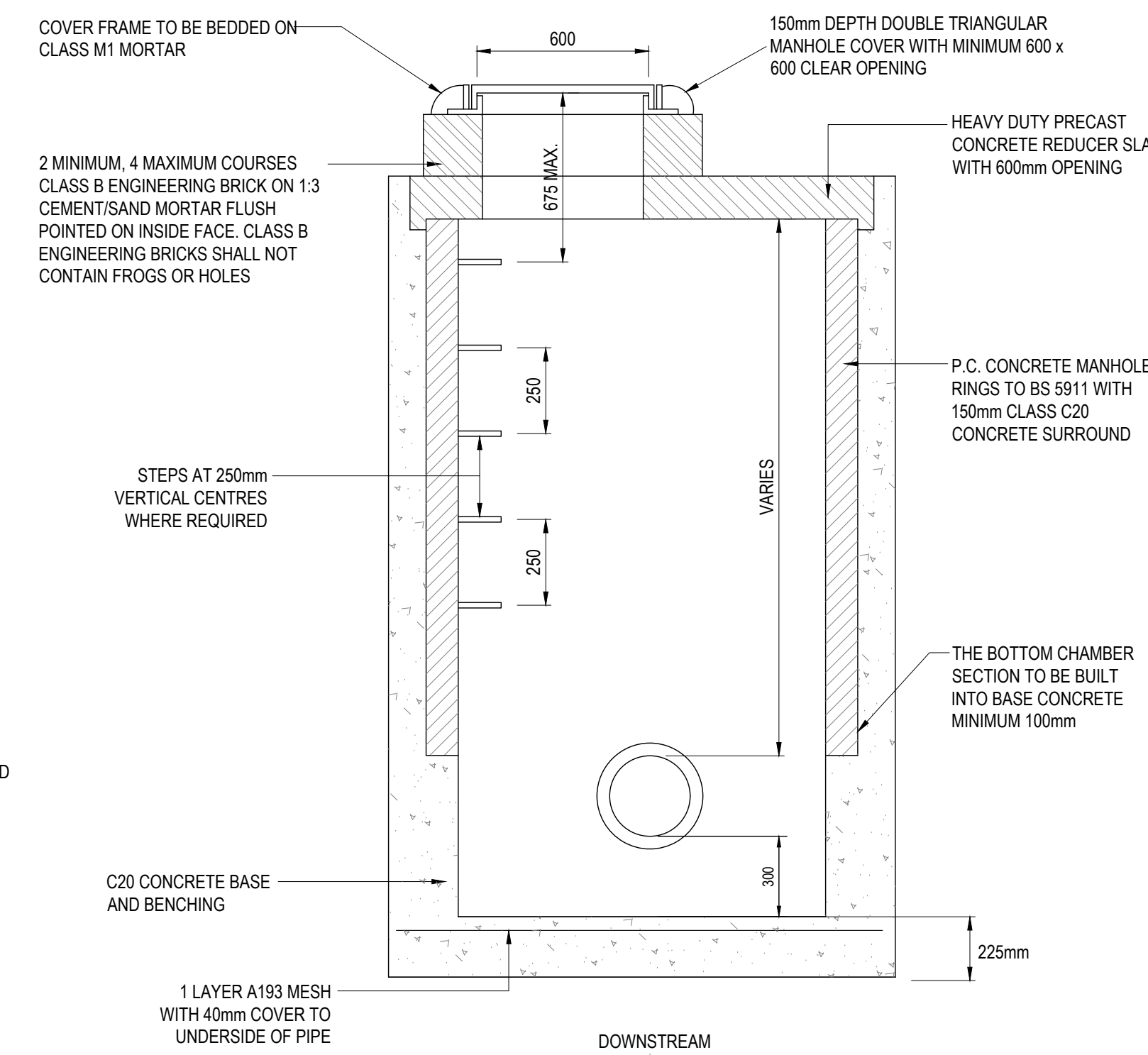
PIPE JOINT WITH CHANNEL TO BE LOCATED MIN. 100mm INSIDE FACE OF CHAMBER

STEPS AND ACCESS ARRANGEMENTS OR OTHERWISE TO BE FITTED AS REQUIRED BY UNDERTAKER'S POLICY

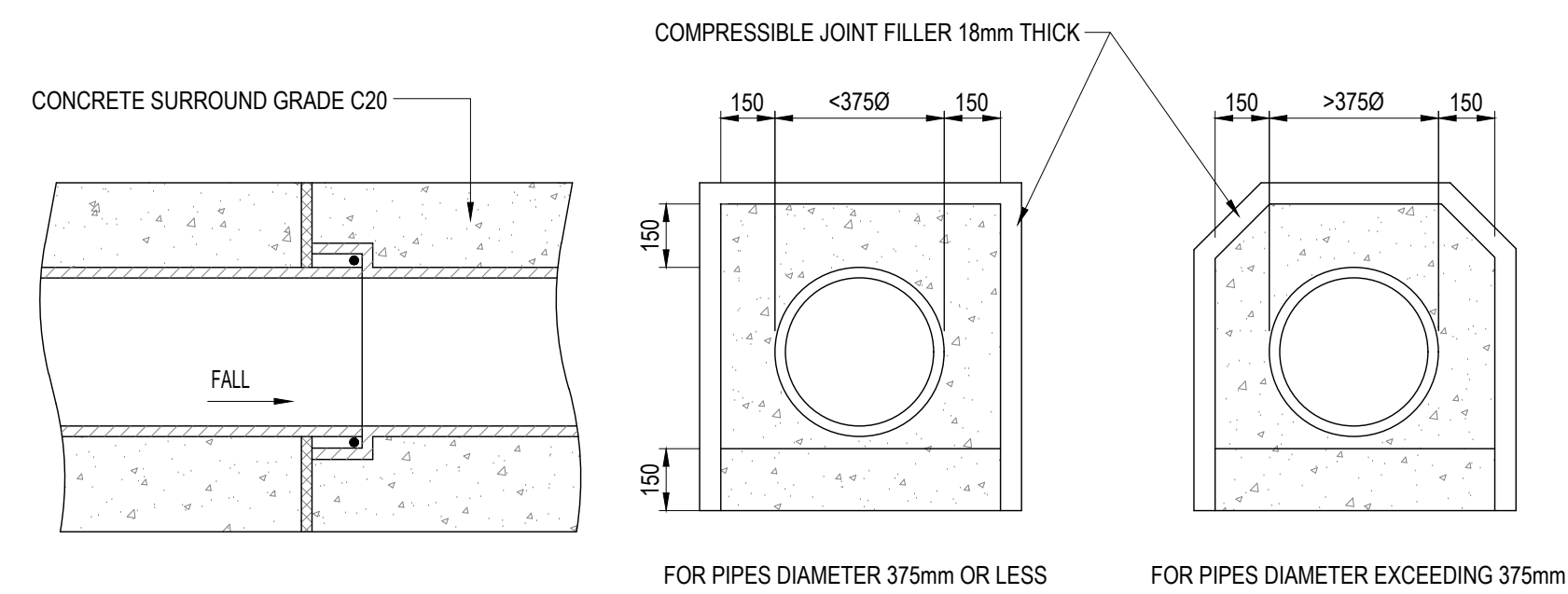
MIN. BENCHING WIDTHS TO LANDING SIDE OF MANHOLE	MIN. BENCHING
PIPE Ø	
400 & BELOW	600mm
450 - 700	750mm
750 & ABOVE	1100mm



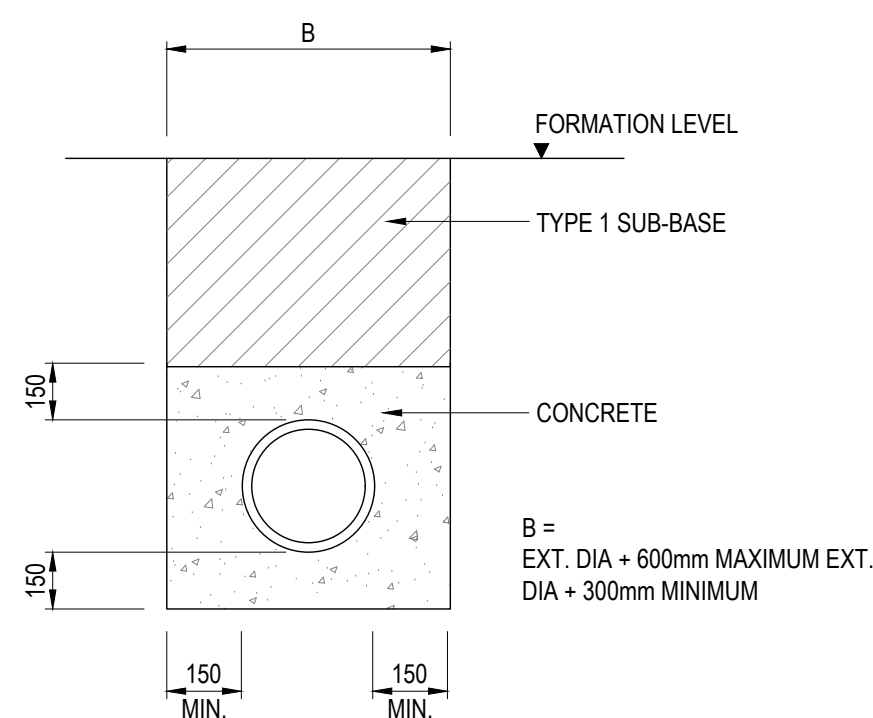
TYPICAL MANHOLE TYPE 4
(MAX. DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 1.0m - 1.6m)



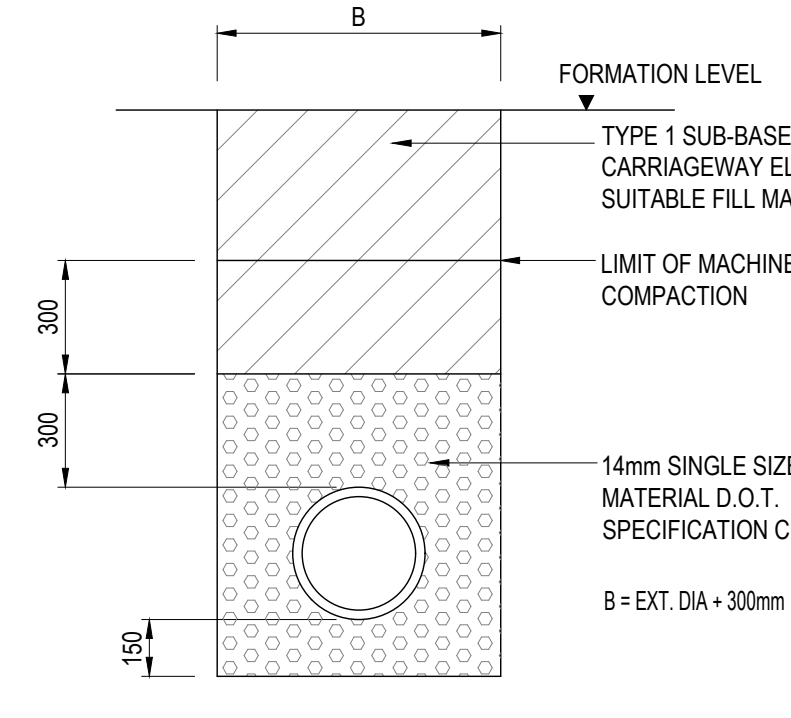
TYPICAL MANHOLE - CATCHPIT
(MAX. DEPTH FROM GROUND LEVEL TO SOFFIT OF PIPE 3.0m)



DETAILS OF FLEXIBLE JOINT FOR PIPES WITH CONCRETE SURROUND (150mm THICK) PROVIDED AT EACH PIPE JOINT

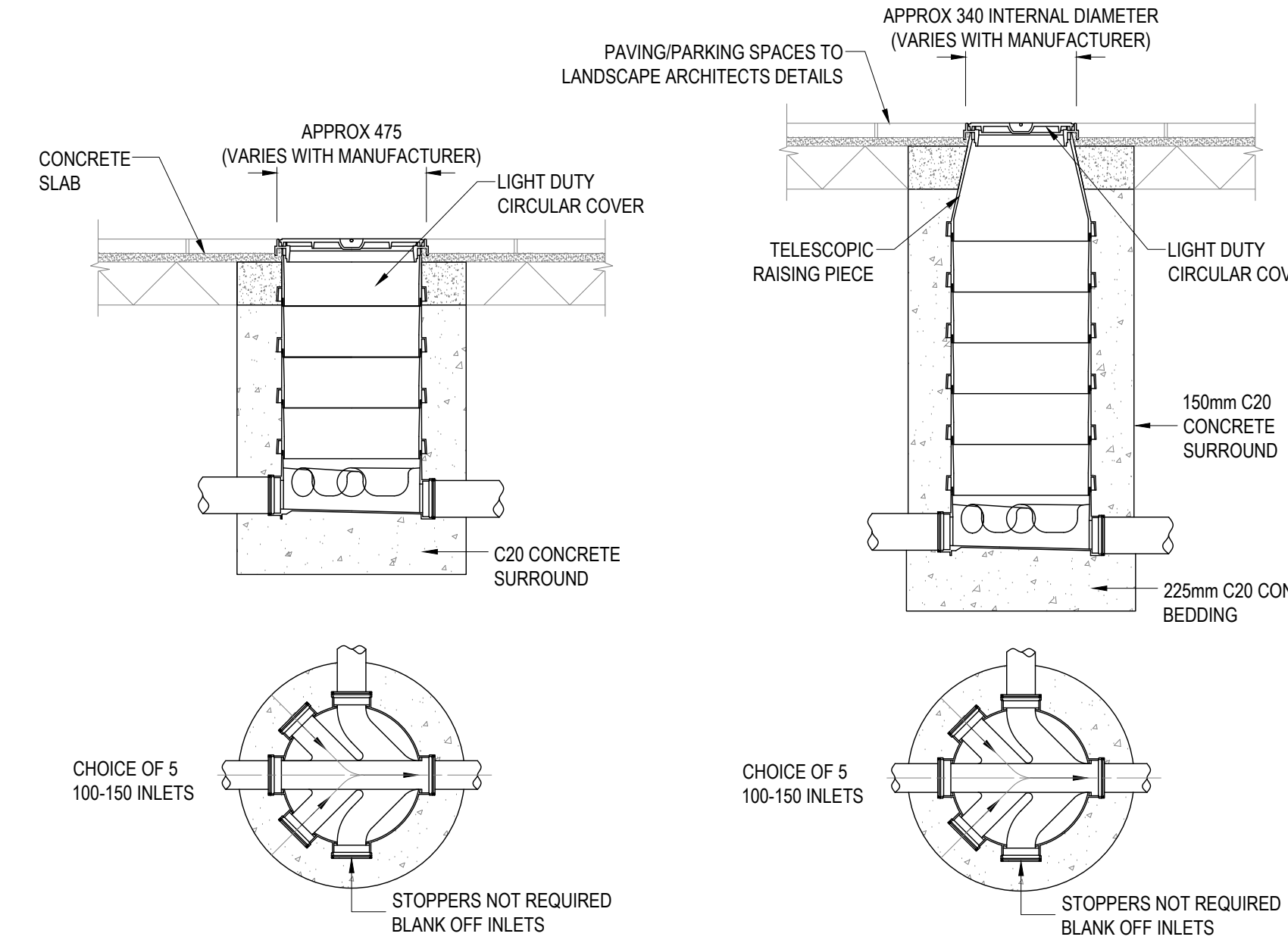


CLASS 'Z' BEDDING DETAIL
(FOR PIPES UNDER TRAFFICKED AREAS WITH <1.2m COVER)



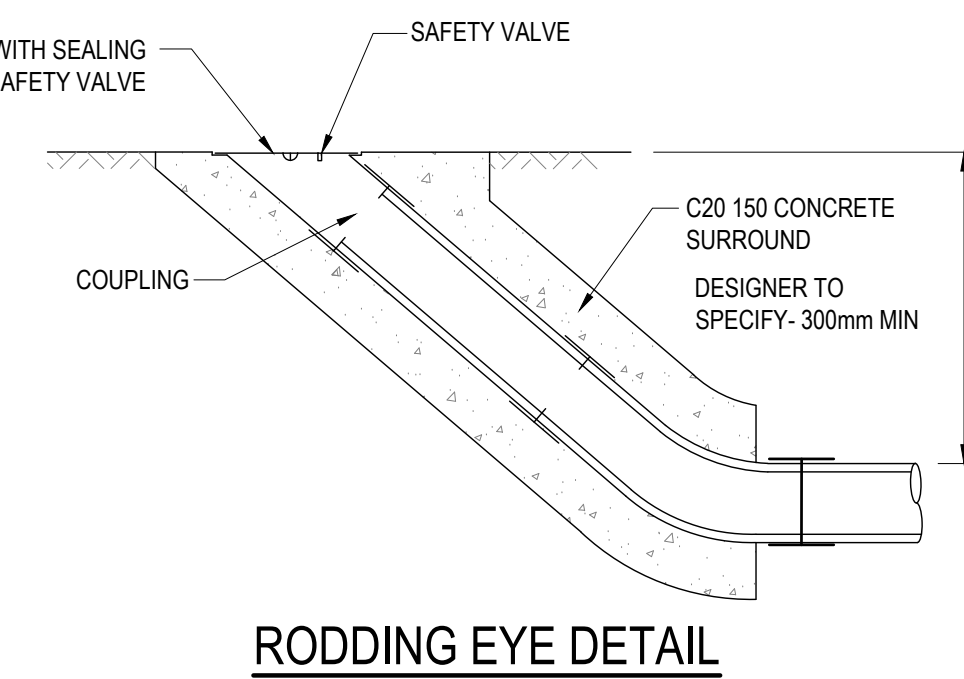
CLASS 'S' BEDDING DETAIL

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

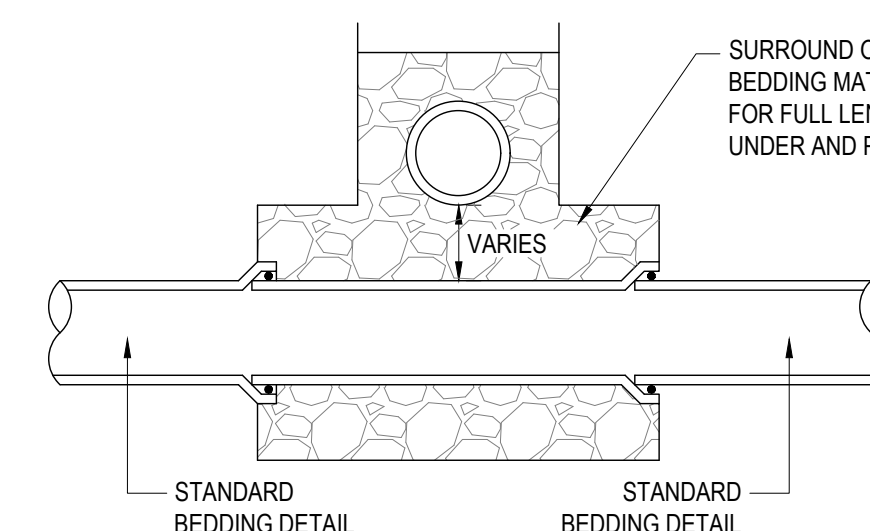


POLYPROPYLENE INSPECTION CHAMBER DETAILS

REDUCED ACCESS INSPECTION CHAMBER DETAILS (DEPTH 1.1m < 3m)

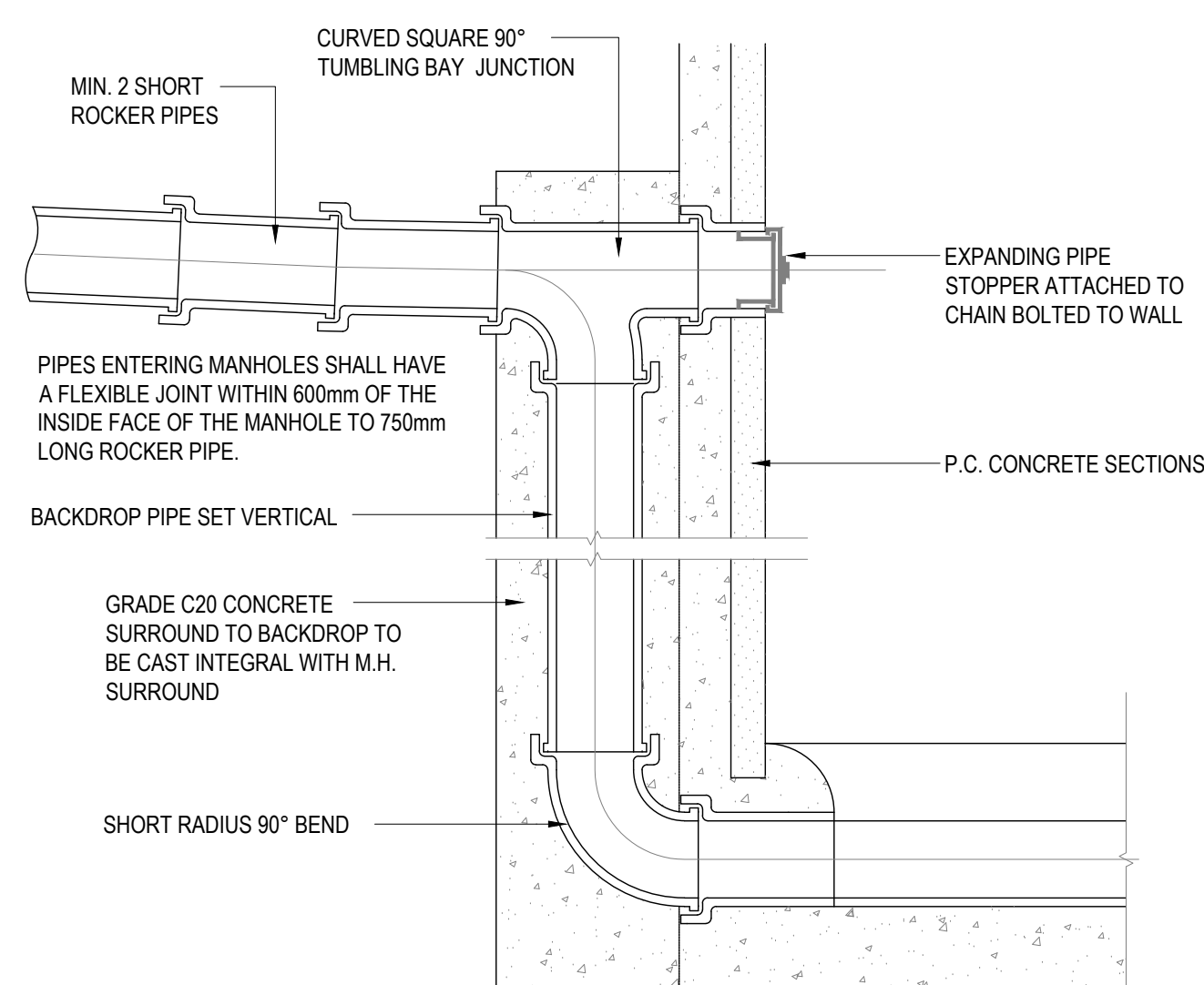


RODDING EYE DETAIL

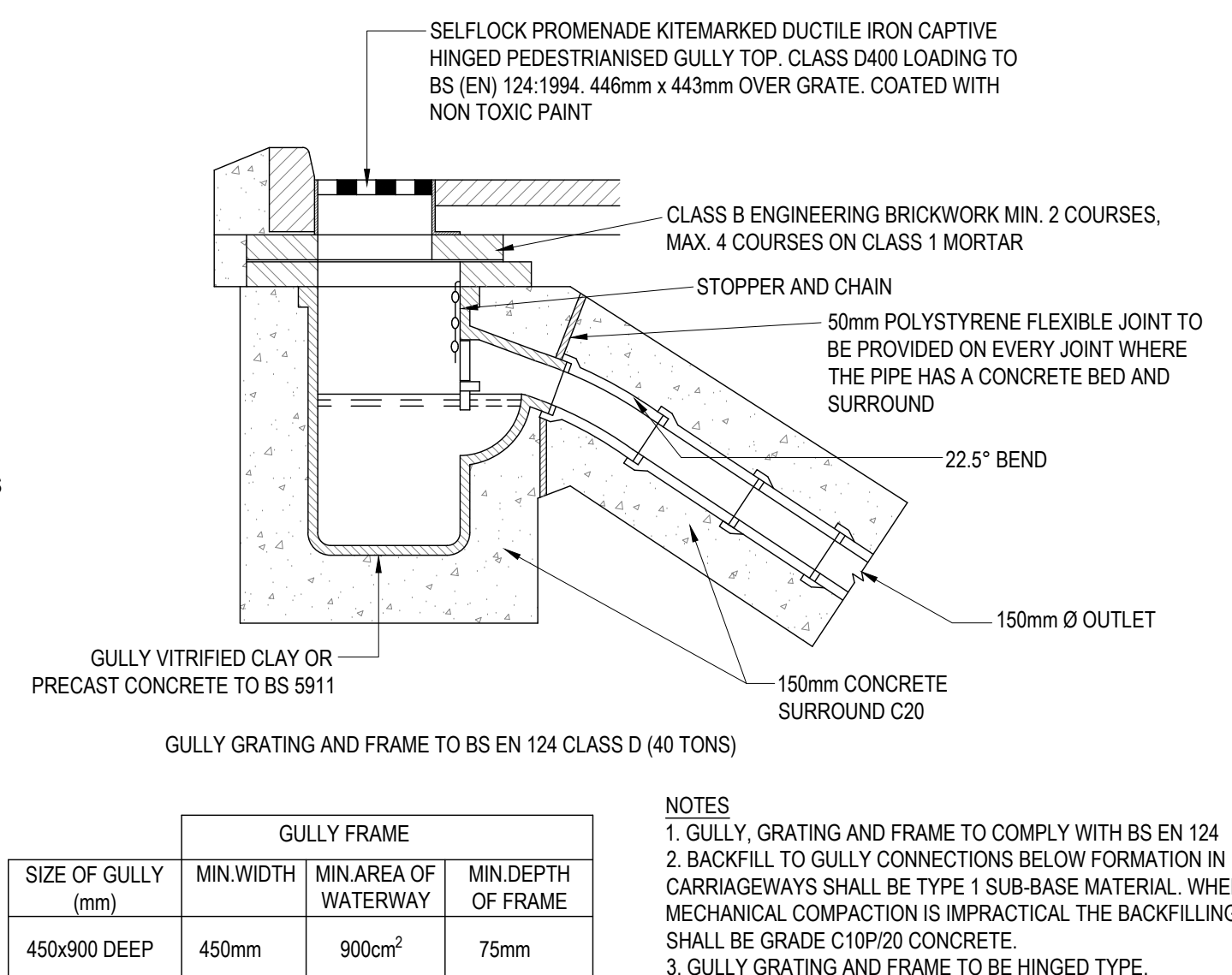


PIPE CROSSINGS OVER

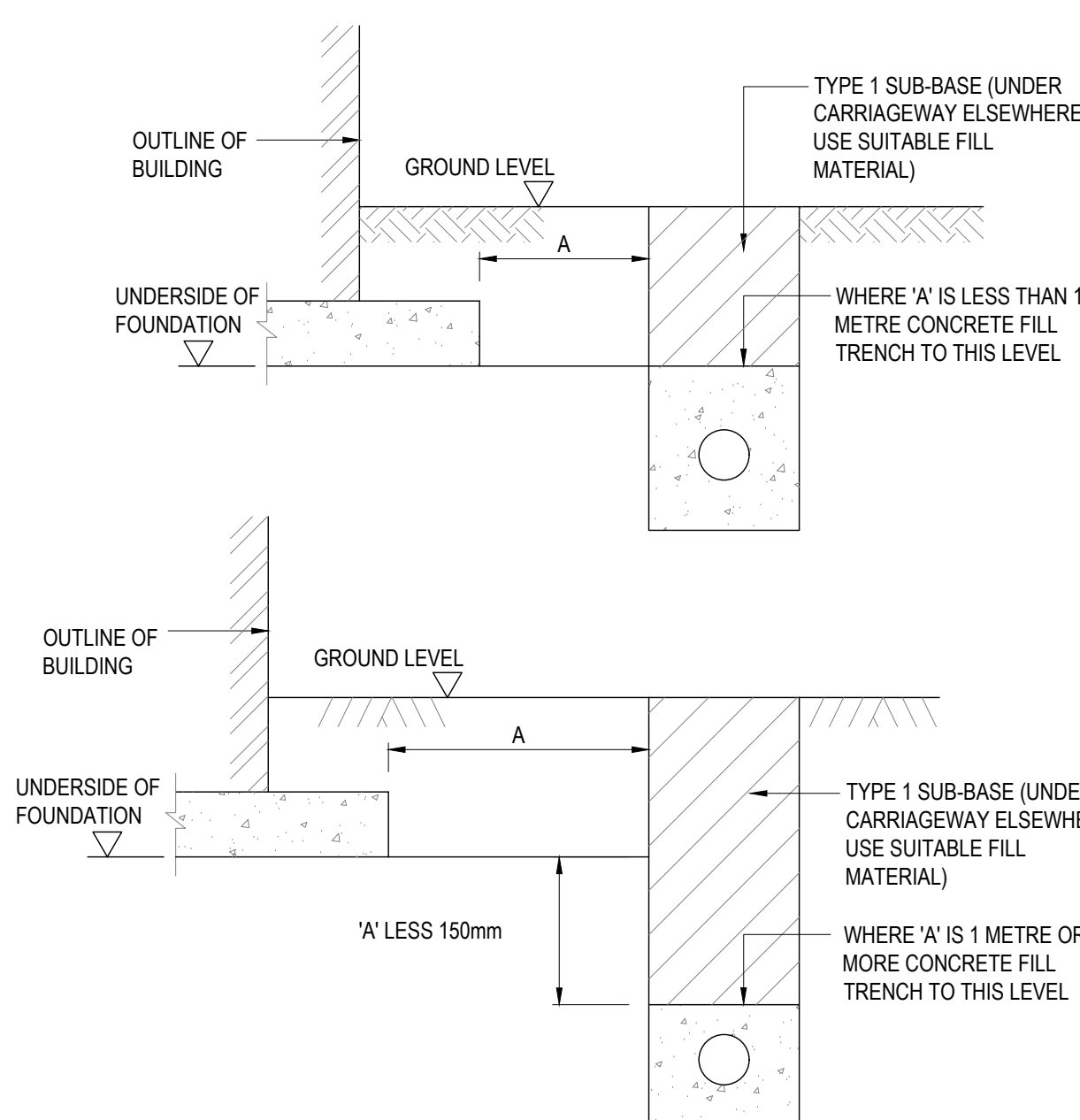
STANDARD MIX	GRADE OF CONCRETE	APPLICATIONS
ST1	C7.5	FILLINGS, BLINDINGS, SOFT SPOTS AND DRAINAGE SUMPS
ST4	C20	ALL OTHER APPLICATIONS



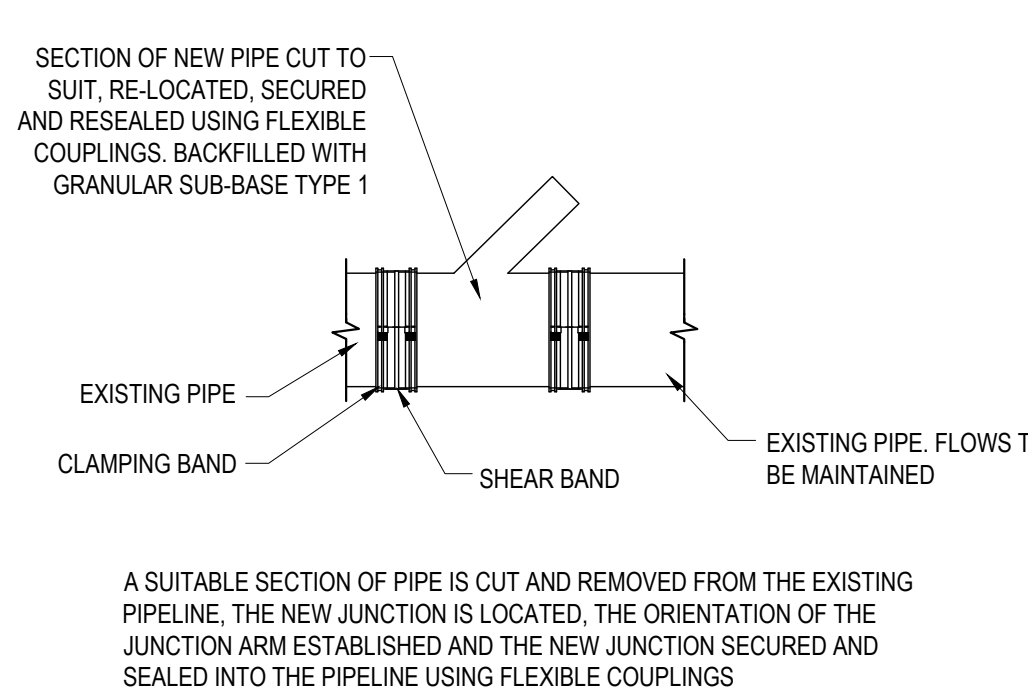
TYPICAL VERTICAL BACKDROP DETAIL



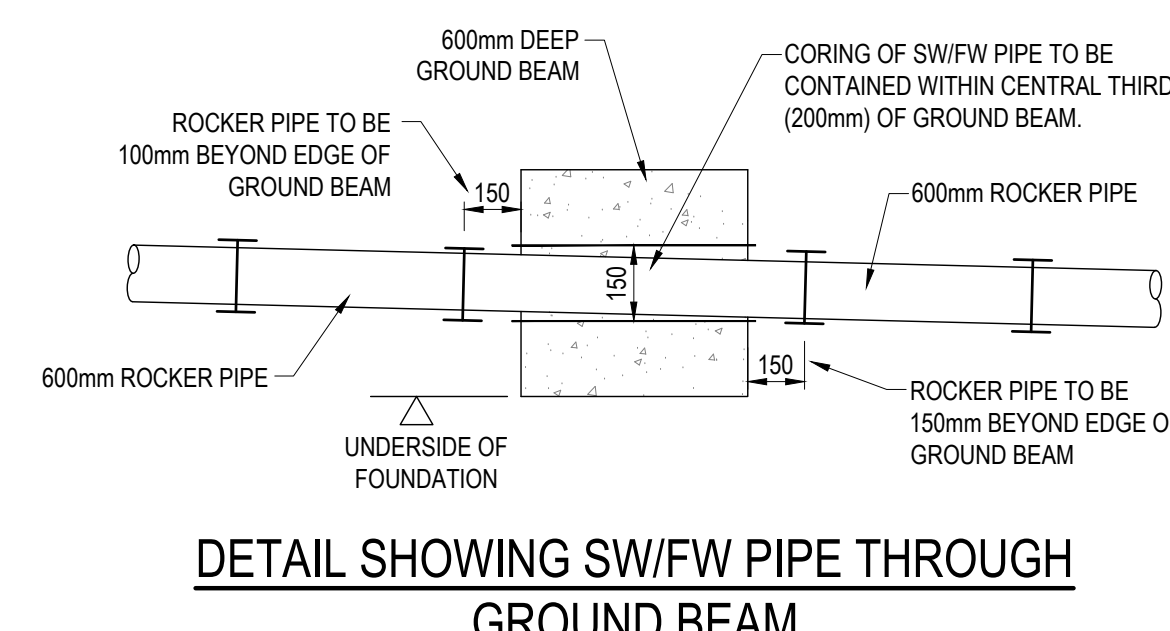
TYPICAL ROAD GULLY DETAIL



TRENCH DETAIL FOR FW AND SW PIPE RUNS NEAR BUILDING FOUNDATIONS



JUNCTION INSERTION



DETAIL SHOWING SW/FW PIPE THROUGH GROUND BEAM

GENERAL NOTES

- SETTING OUT SHALL BE UNDERTAKEN USING ONLY THE INFORMATION GIVEN. DISTANCES SHOULD NOT BE SCALED FROM THIS DRAWING.
- ALL SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH DESIGN AND CONSTRUCTION GUIDANCE AND UNITED UTILITIES DETAILS & GUIDELINES.
- THE MINIMUM GRAVITY PIPE DIAMETER UNDER ADAPTABLE HIGHWAYS SHALL BE 150mm.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION GIVEN WITH REGARDS TO EXISTING SERVICES AND DRAINAGE CONNECTIONS ETC. PRIOR TO COMMENCING THE WORKS. THE RATES SHALL INCLUDE FOR HAND DIG AROUND SERVICES WHERE NECESSARY. THE CONTRACTOR SHALL ADHERE TO THE COW REGULATIONS AT ALL TIMES.
- THE OUTSIDES OF ALL SEWERS SHALL BE A MINIMUM OF 1.0m FROM KERB LINES AND THE OUTSIDE OF MANHOLES SHALL BE A MINIMUM OF 0.5m FROM KERB LINES.
- EXISTING FLOWS IN WATERCOURSES, SEWERS AND LAND DRAINS SHALL BE MAINTAINED AT ALL TIMES.
- ONLY TRAINED PERSONNEL SHALL BE PERMITTED TO ENTER CONFINED SPACES.
- 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.
- 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 THE NETWORK OPERATOR AS APPLICABLE.
- WHERE 'ULTRA RIB' (UPVC PIPES) (OR SIMILAR APPROVED) ARE USED IN ADAPTABLE DRAINAGE THEY SHALL STILL BE HANDLED AND LAD 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. TRENCH BACKFILL IN HIGHWAYS TO WITHIN 1m OF HIGHWAY SHALL, AS DIRECTED BY THE HIGHWAY AUTHORITY BE A SUITABLE GRANULAR MATERIAL ALL IN ACCORDANCE WITH SEWERS FOR ADOPTION CL. 4.3.4.
- SLAB LEVELS SHALL NOT BE VARIED WITHOUT REFERENCE TO THE ENGINEER FOR GUIDANCE.
- DOMESTIC DRAINAGE SHALL BE TO BUILDING REGULATIONS APPROVED DOCUMENT H. 110mm U.P.V.C. PIPES LAD TO THE FOLLOWING MINIMUM FALLS UNLESS OTHERWISE SHOWN.

	FOUL	S.W.
HEAD RUN	1 IN 40	1 IN 60
ELSEWHERE	1 IN 80	1 IN 100
- ALL HIGHWAY GULLY CONNECTIONS TO BE 150mm VITRIFIED CLAY UNLESS NOTED OTHERWISE.
- ALL PRIVATE GULLY CONNECTIONS TO BE 100mm VITRIFIED CLAY UNLESS NOTED OTHERWISE.
- MINIMUM COVER TO DRAINAGE SOFFIT LEVEL & ACCESS CHAMBERS:

LANDSCAPING	TRAFFICKED AREAS	HIGHWAYS
0.600m	0.900m	1.200m
- CLASS 'S' BEDDING AND SURROUND TO BE USED WHERE MINIMUM COVER IS ACHIEVED. WHERE MINIMUM COVER IS NOT ACHIEVED CLASS 'Z' BEDDING AND SURROUND (CONCRETE ENCASMENT) IS TO BE USED.
- FOUNDATIONS WITHIN CLOSE PROXIMITY TO PROPOSED DRAINAGE WILL NEED TO BE AT THE SAME DEPTH AS DRAINAGE TO AVOID THE POTENTIAL FOR UNDERMINING.