

BEDDING NOTES
1. GRANULAR PIPE BEDDING MATERIAL FOR PIPES, AND BACKFILLING FOR TEMPORARY DRAINS (TRENCH SUB-DRAINS), SHALL CONSIST OF AGGREGATES FROM NATURAL SOURCES OR SINTERED PULVERIZED-FUEL ASH COMPLYING WITH THE RELEVANT PROVISIONS OF BS 882 AND BS 3797, PART 2 RESPECTIVELY. SIZED IN ACCORDANCE WITH THE FOLLOWING TABLE:

NOMINAL BORE	ALTERNATIVE AGGREGATE SIZES (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, 20 TO 5 OR 40 TO 5

2. SELECTED BACKFILL MATERIAL, WHETHER SELECTED FROM LOCALLY EXCAVATED MATERIAL OR IMPORTED, SHALL CONSIST OF UNIFORM, READILY COMPACTABLE MATERIAL, FREE FROM VEGETABLE MATTER, BUILDING RUBBISH & FROZEN MATERIAL, OR MATERIALS SUSCEPTIBLE TO SPONTANEOUS COMBUSTION, & EXCLUDING CLAY OF LIQUID LIMIT GREATER THAN 80 AND/OR PLASTIC LIMIT GREATER THAN 35 AND MATERIALS OF EXCESSIVELY HIGH MOISTURE CONTENT. CLAY LUMPS AND STONES SHALL BE RETAINED ON 75mm AND 37.5mm SIEVES RESPECTIVELY.

3. COMPRESSIBLE FILLER FOR INTERRUPTING CONCRETE PROTECTION TO PIPELINES SHALL CONSIST OF BITUMEN IMPREGNATED INSULATING BOARD TO BS 1142, PART 3 OR OTHER EQUALLY COMPRESSIBLE MATERIAL. THE THICKNESS OF COMPRESSIBLE FILLER SHALL BE AS FOLLOWS:

NOMINAL BORE OF PIPE (mm)	THICKNESS OF COMPRESSIBLE FILLER (mm)
LESS THAN 450	18
450 - 1200	36
EXCEEDING 1200	54

4. THE CONTRACTOR IS TO PROTECT BURIED PIPES (PARTICULARLY SHALLOW PIPES) FROM DAMAGE CAUSED BY LOADS IMPOSED BY CONSTRUCTION PLANT.

5. BELOW ROADS AND OTHER PAVED AREAS TRENCHES SHALL BE BACKFILLED WITH DIT SPECIFICATION TYPE 1 SUB-BASE MATERIAL UP TO ROAD/PAVING FORMATION LEVEL. ALL OTHER TRENCHES UNLESS OTHERWISE SPECIFIED SHALL BE BACKFILLED TO FINISHED GROUND LEVEL OR UNDERSIDE OF TOPSOIL LAYER WITH WELL COMPACTED EXCAVATED MATERIAL.

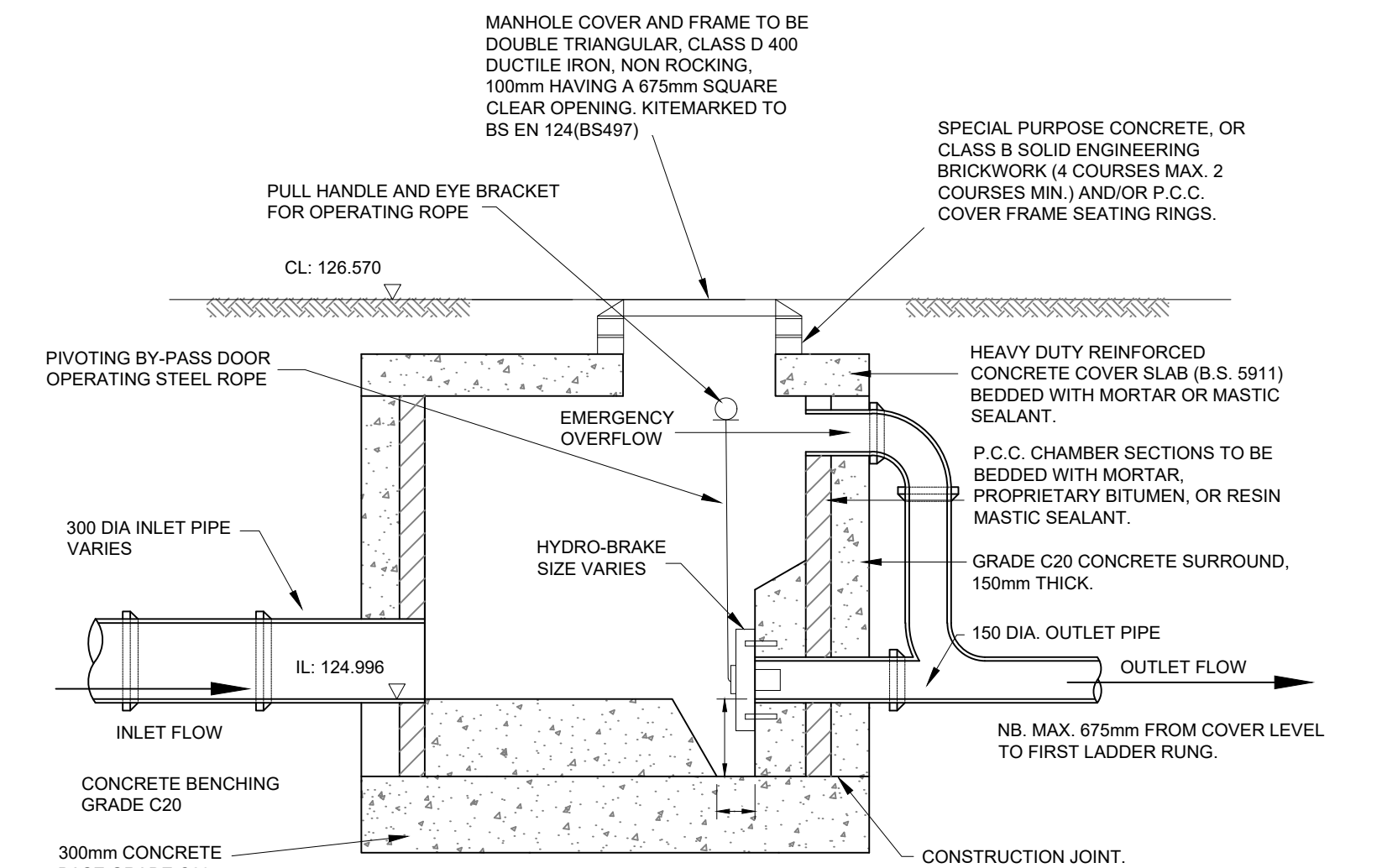
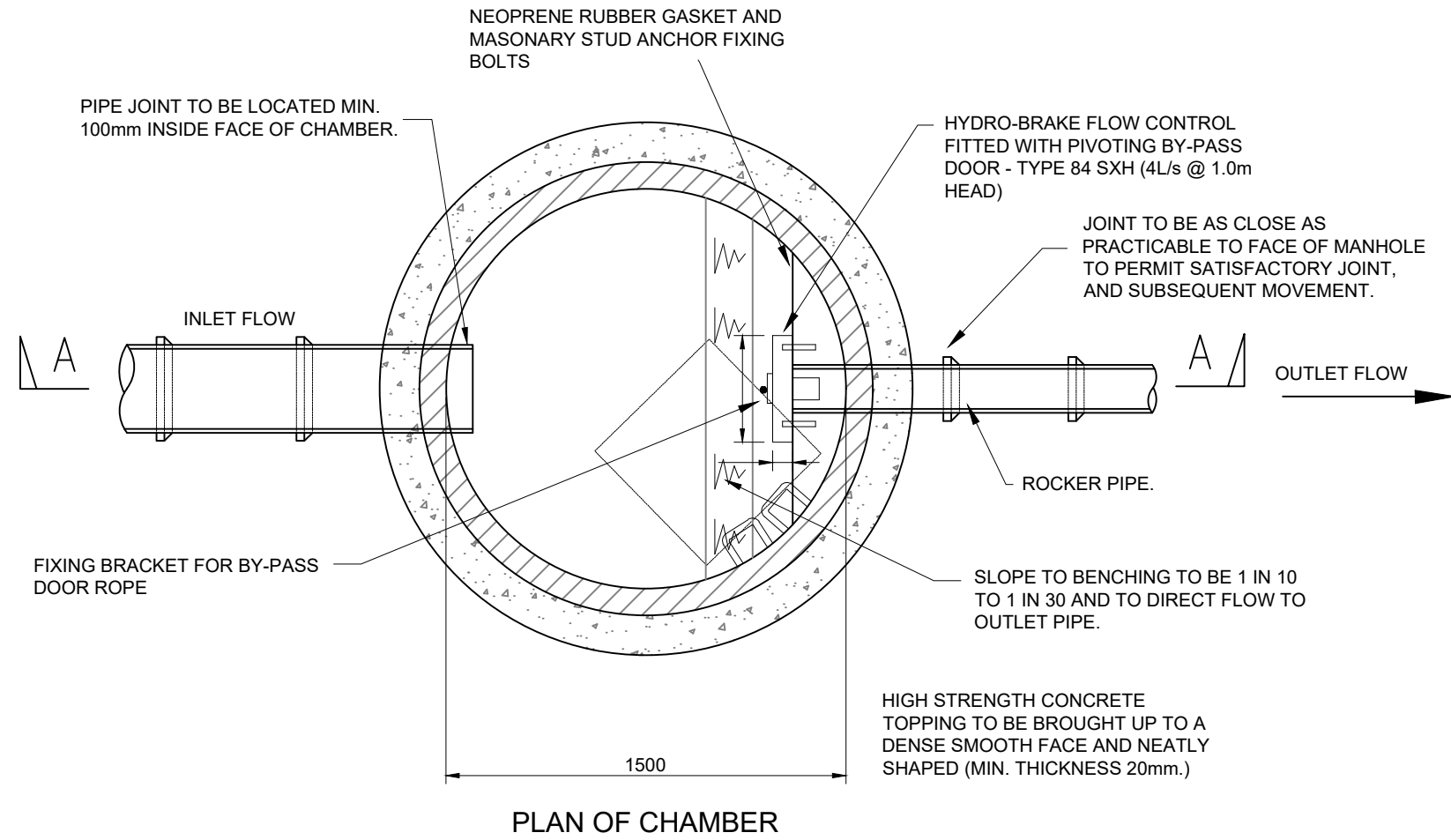
GRANULAR BEDDINGS
1. DIMENSION Y: 1/6 BC OR 100mm UNDER BARRELS, AND 50mm MIN. UNDER SOCKETS WHICHEVER IS THE GREATER (400 MAX.).
2. DN : NOMINAL BORE OF PIPE
3. BC : EXTERNAL DIAMETER OF PIPE BARREL

CONCRETE BEDDINGS
1. THE USE OF GRANULAR BEDDINGS BELOW CONCRETE BEDDINGS (BEDDING TYPES A2/A4/A6) ARE FOR USE IN WET CONDITIONS.
2. CONCRETE CRADLES MAY EXTEND TO SIDES OF TRENCH.
3. TRANSVERSE STEEL TO BE 0.4% MIN OF CONCRETE AT X-X (FM-3.4) UNLESS OTHERWISE STATED.
4. BEDDING BENEATH & AT SIDES OF PIPE TO BE WELL COMPACTED.
5. BEDDING/BACKFILL DIRECTLY ABOVE PIPE TO BE LIGHTLY COMPACTED BY HAND. DIMENSION Y: 1/6BC OR 100mm UNDER BARRELS, AND 50mm UNDER SOCKETS WHICHEVER IS GREATER (SUBJECT TO 400mm MAX.).
6. DN = NOMINAL BORE OF PIPE
7. BC = EXTERNAL DIAMETER OF PIPE BARREL

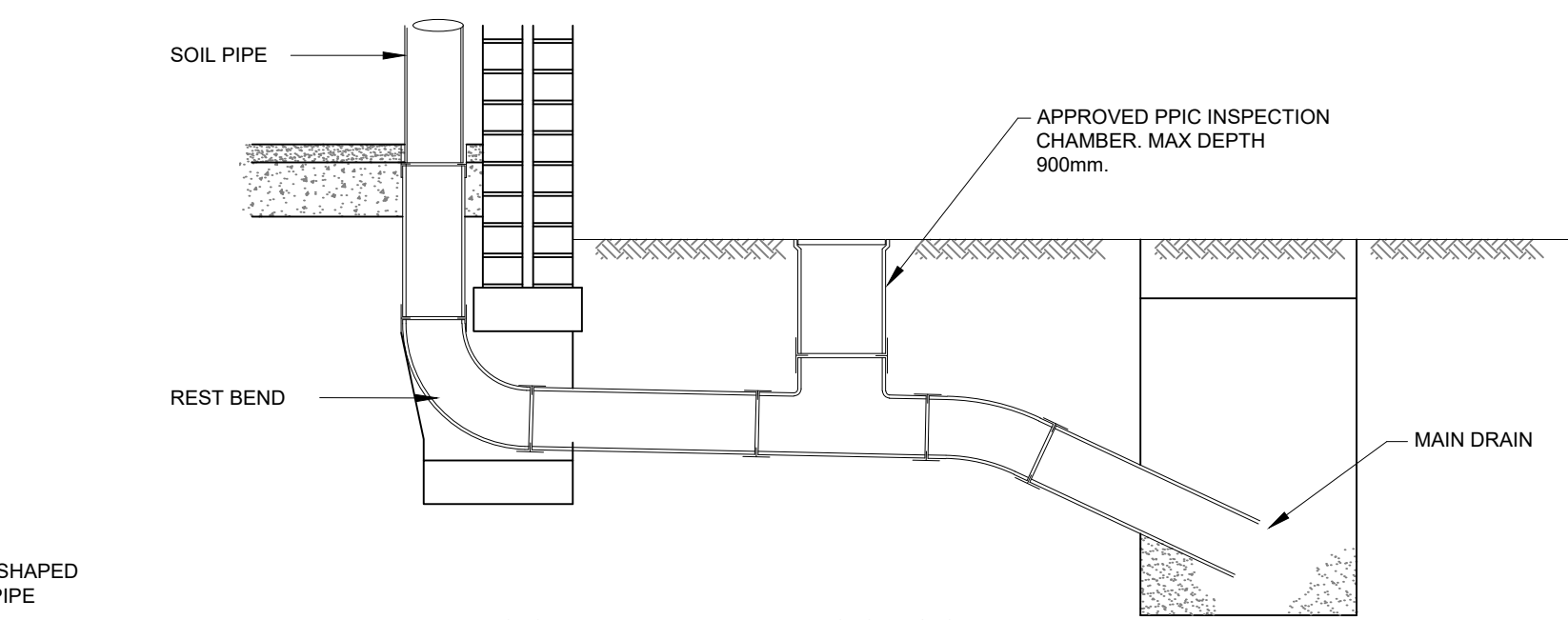
TRENCH WIDTH

1. THE MAXIMUM TRENCH WIDTHS ARE TO BE AS SHOWN BELOW UNLESS THE APPROVAL OF THE ENGINEER IS OBTAINED.

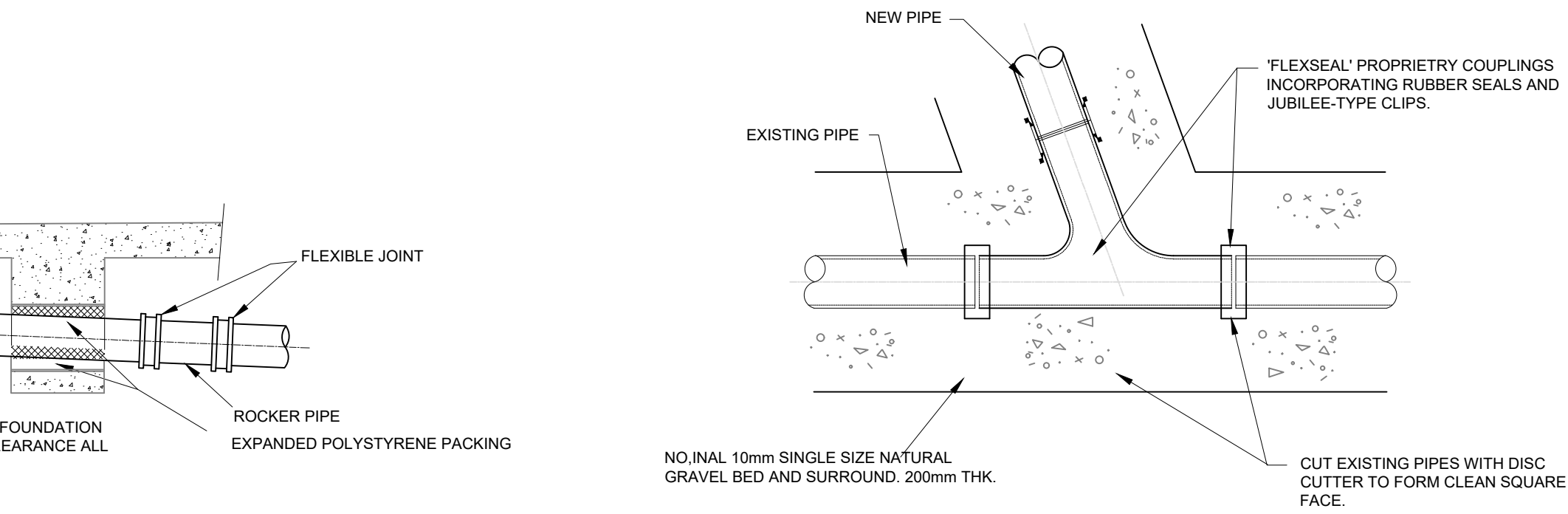
INTERNAL PIPE DIAMETER	MAXIMUM TRENCH WIDTH
100	600
150	600
225	700
300	850
375	1050
450	1150
525	1200
600	1350
675	1450
750	1500
825	1600
900	1900
975	2000
1050	2100
1200	2300



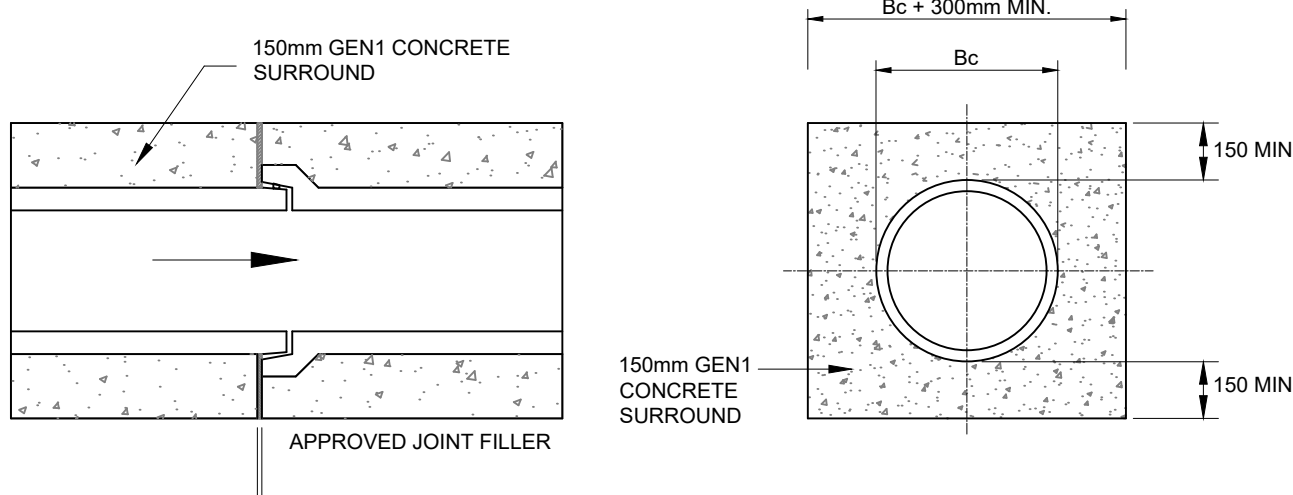
SECTION A - A
PRIVATE HYDROBRAKE CHAMBER, SMH2
MODEL NO. MD-SHE-0069-2000-0900-2000
SCALE 1:25



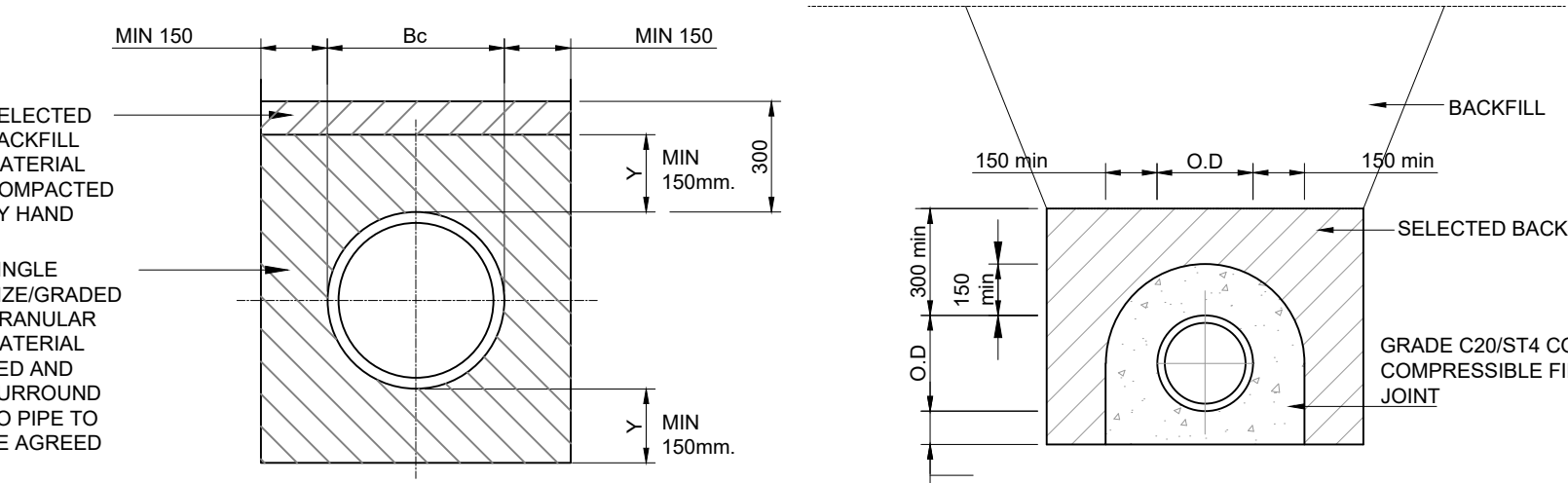
SOIL PIPE AND ACCESS PIPE DETAIL
1:20



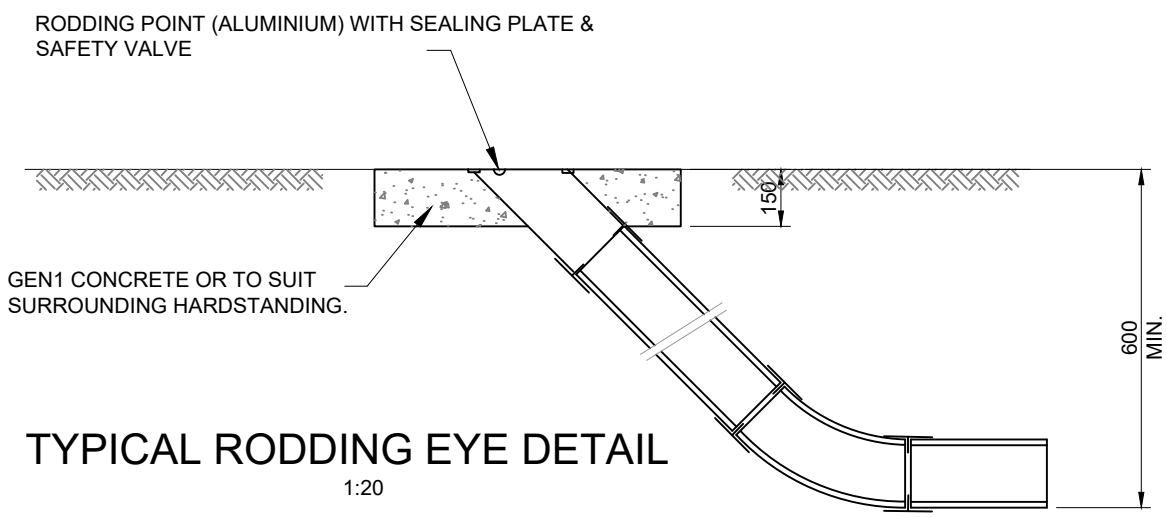
PIPE PASSING THROUGH FOUNDATIONS
1:20



JOINT DETAIL OF TYPE Z BEDDING
1:20

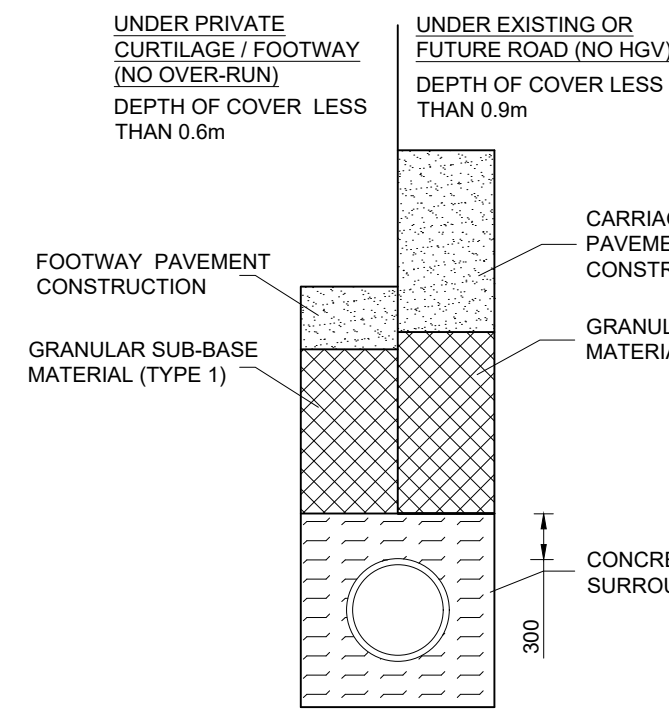


TYPE S BEDDING
1:20

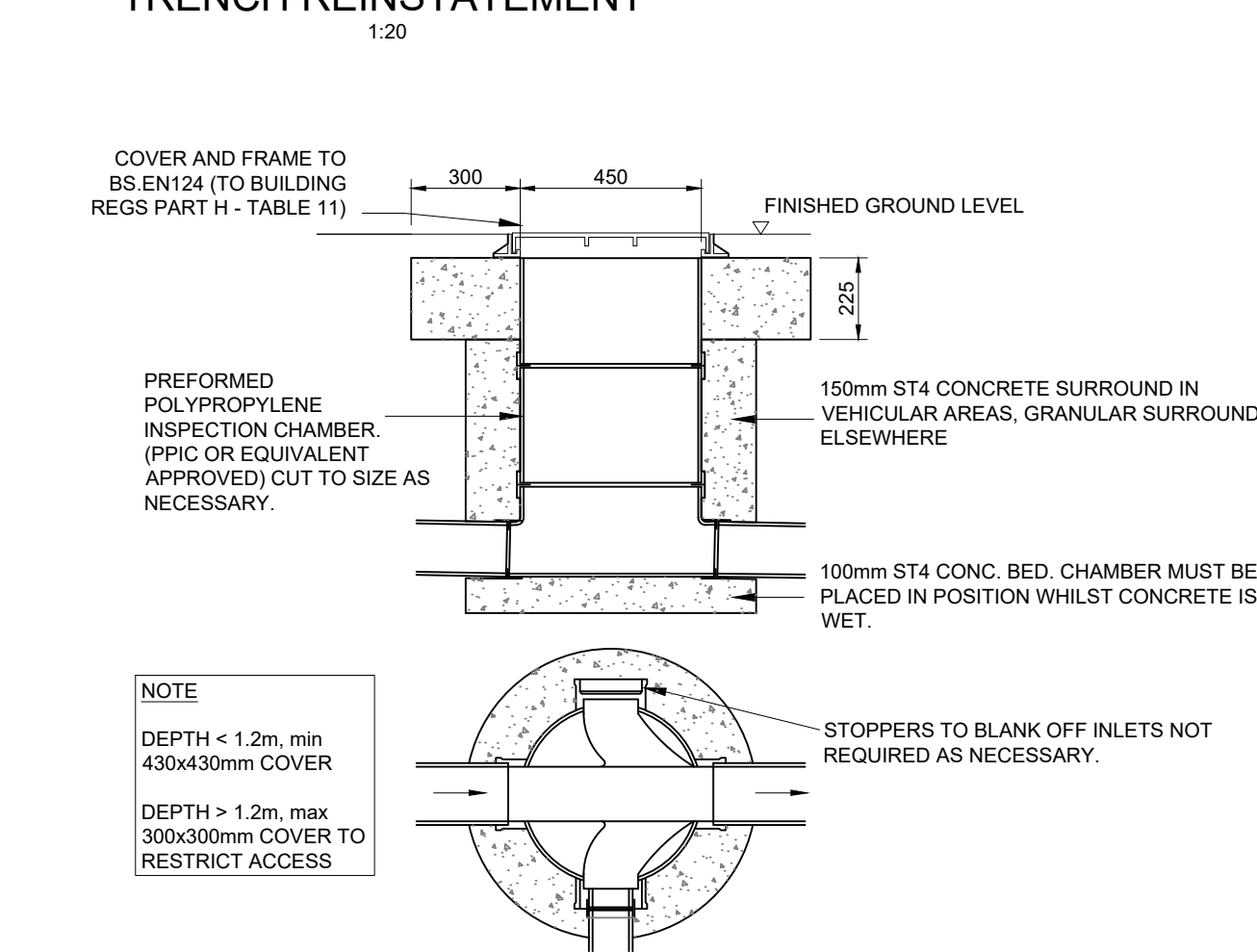


TYPICAL RODDING EYE DETAIL
1:20

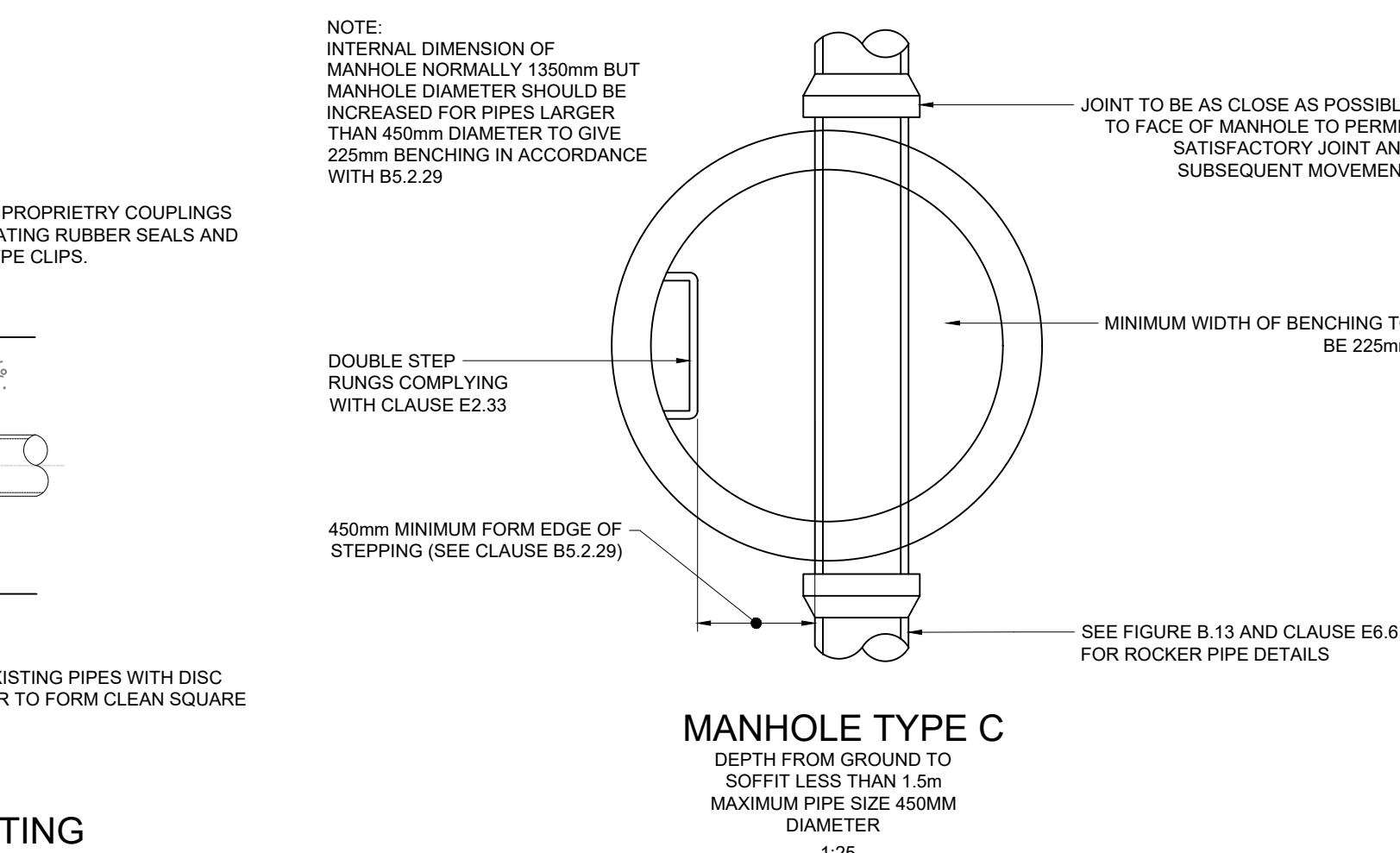
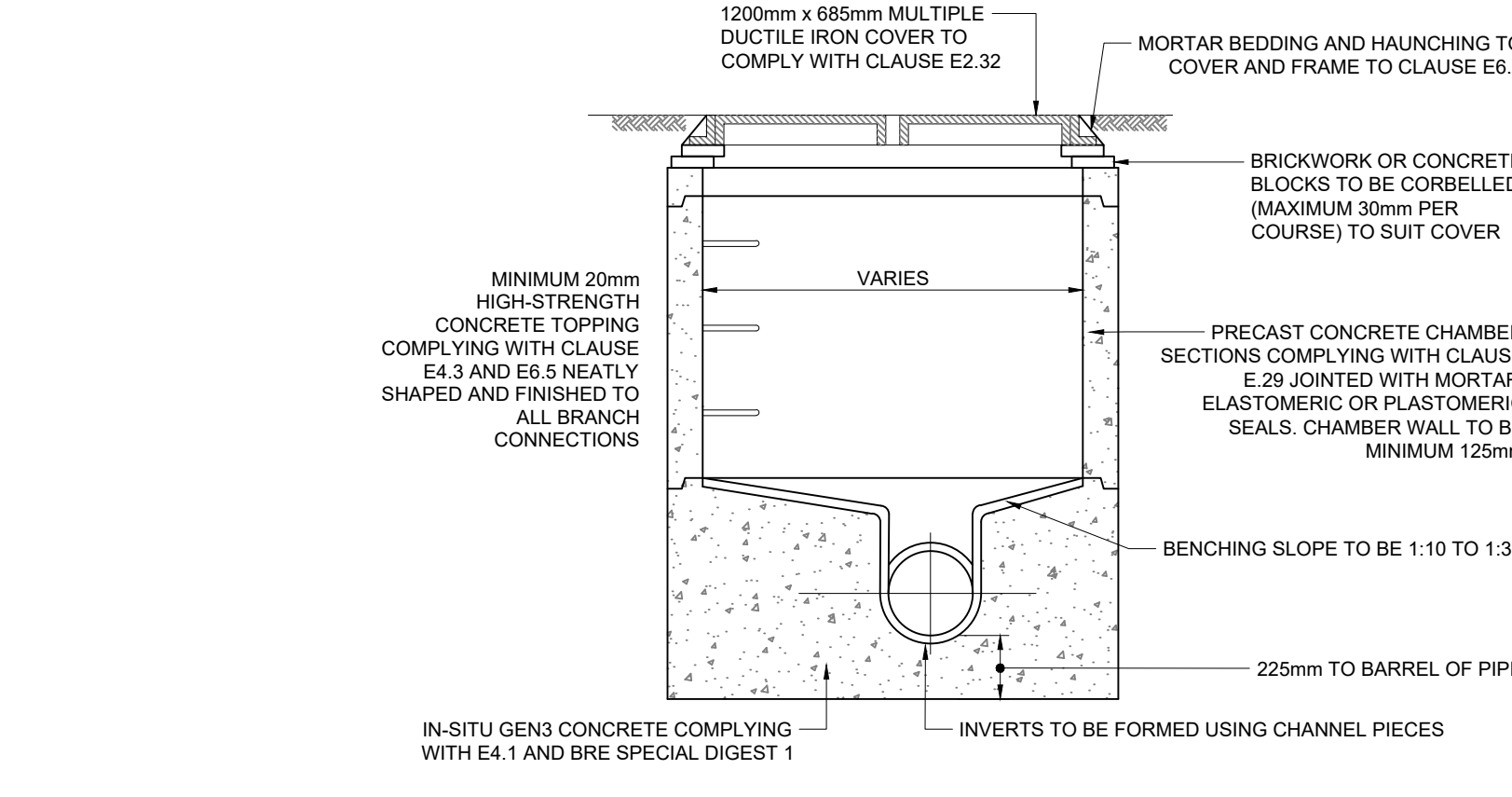
BED CLASS Z
PLAIN CONCRETE SURROUND
1:20



PRIVATE PIPE SURROUND & TRENCH REINSTATEMENT
1:20



POLYPROPYLENE INSPECTION CHAMBER
MAX DEPTH 1.2m
1:20



MANHOLE TYPE C
DEPTH FROM GROUND TO SOFFIT LESS THAN 1.5m
MAXIMUM PIPE SIZE 450mm
DIAMETER
1:25

- WHERE DRAINS PASS UNDER ROADS AND DRIVES, THE FINAL COMPACTION SHOULD BE SUFFICIENT TO PREVENT LATER SETTLEMENT.
- ALL MANHOLE AND DRAINAGE CHANNEL COVERS SHALL COMPLY WITH BS EN124. NON-VENTILATING WITH CLOSED KEYWAYS. COVER STRENGTHS TO BE:
 - CLASS D400 IN HEAVILY TRAFFICKED AREAS (ACCESS ROADS, ETC.) EXCEPT ON DEMARCATION CHAMBERS.
 - CLASS C250 IN LIGHTLY TRAFFICKED AREAS (CAR PARKS ETC.) - NOT ADOPATABLE.
 - CLASS B125 (WITH MIN. 100MM DEEP FRAME) IN LANDSCAPE & NON-TRAFFICKED AREAS (PLANTING, PEDESTRIAN AREAS ETC.) - NOT ADOPATABLE.
- DEMARCATION CHAMBERS TO BE MIN 800mm.
- COVER LEVELS FOR MANHOLES WITHIN EXTERNAL AREAS ARE APPROXIMATE SHOULD BE CHECKED WITH THE LAYOUTS. COVERS SHOULD BE ADJUSTED TO MATCH SURROUNDING FINISH LEVELS.
- FOR SETTING OUT OF SVP AND RWP, PLEASE REFER TO ARCHITECT'S DRAWING.
- ACCESS FOR RODDING/GETTING SHALL BE PROVIDED TO ALL SOIL AND RAINWATER DOWNPIPES ABOVE FINISHED FLOOR LEVEL.
- THRESHOLD DRAINAGE IS REQUIRED WHERE LEVELS FALL TOWARDS THE BUILDING ENTRANCE.
- INSPECTION AND TESTING SHOULD BE ARRANGED AND CARRIED OUT BEFORE BACKFILLING IN ACCORDANCE WITH THE NHBC / BUILDING REGULATION PART H REQUIREMENTS, TO BE CONFIRMED PRIOR TO CONSTRUCTION. WHEN THE DWELLING IS HANDED OVER, THE SYSTEM MUST BE IN FULL WORKING ORDER AND FREE FROM OBSTRUCTION.

GENERAL NOTES

- THIS DRAWING SHOULD NOT BE PRODUCED IN WHOLE OR PART WITHOUT THE WRITTEN CONSENT OF LINK ENGINEERING.
- DO NOT SCALE FROM THIS DRAWING. UNITS ARE IN METRES UNLESS NOTED OTHERWISE.
- THE CONTRACTOR IS TO CHECK ALL INFORMATION PROVIDED PRIOR TO COMMENCING WORKS AND SEEK CLARIFICATION FROM THE ENGINEER IN RESPECT TO ANY AMBIGUITIES FOUND.
- ANY DISCREPANCIES NOTED ON SITE ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH ALL OTHER SCHEME SPECIFIC DRAWINGS & SPECIFICATIONS.
- BACKGROUND PLAN BASED ON TOPOGRAPHIC SURVEY DATA CREATED BY OTHERS AND SUPPLIED FOR THE PURPOSE OF CARRYING OUR ENGINEERING WORKS. WE CANNOT BE HELD RESPONSIBLE FOR THE CONTENT, COMPLETENESS AND ACCURACY PROVIDED TO US BY OTHERS. THE CONTRACTOR SHALL CHECK ALL DIMENSIONS AND LEVELS ON SITE.
- ALL PRIVATE EXTERNAL DRAINAGE WORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH BUILDING REGULATION'S PART H AND / OR NHBC SECTION 5.3 TO THE RELEVANT PROJECT SPECIFICATION AS DIRECTED BY THE ENGINEER FOR PRIVATE DRAINAGE.
- FOR DETAILS OF THE GROUND CONDITIONS AND BURIED CONCRETE CLASS, PLEASE REFER TO THE GROUND INVESTIGATION REPORT.
- SHOULD ANY DEPARTURE FROM THIS PROPOSED INFORMATION BE CONSIDERED, AGREEMENT SHOULD BE SOUGHT FROM THE ENGINEER PRIOR TO IMPLEMENTATION.
- PIPE MATERIALS SHALL BE AS FOLLOWS:
 - Ø150mm TO Ø300mm - POLYPIPE POLYSEWER OR CLAYWARE CLASS 120 TO TO BS EN 295 CLASS 160.
 - Ø450mm AND ABOVE - POLYPIPE RIDGISEWER OR CLASS 120 CONCRETE TO BS EN 5911
- ALL PIPE RUNS TO BE LAID WITH FLEXIBLE JOINTS.
- ALL PIPES ENTERING AND EXITING MANHOLES ARE TO BE CONNECTED AT PIPE SOFFITS LEVELS UNLESS NOTED OTHERWISE. INVERTS SPECIFIED ARE OUTGOING (EXCEPT WHERE BACKDROPS ARE PRESENT).
- THE PRINCIPAL CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING THE EXISTING LINE AND INVERT LEVELS OF ANY CONNECTION POINTS FOR BOTH THE FOUL AND STORM WATER SYSTEMS PRIOR TO UNDERTAKING INSTALLATION OF ANY NEW DRAINAGE WORKS. ANY DEVIATION TO THE LEVELS AND POSITIONS INDICATED ON THE DRAWING SHOULD BE BOUGHT TO THE IMMEDIATE ATTENTION OF THE PROJECT ENGINEER.
- ALL FOUL PIPES TO BE MIN Ø100mm AND STORM TO BE MIN Ø150mm UNLESS NOTED OTHERWISE. Ø100mm PIPES ARE TO BE LAID AT A MIN GRADIENT OF 1:80 (MIN 1NO. WC) AND Ø150mm PIPES ARE TO BE LAID AT A MIN GRADIENT OF 1:150.
- FIRST FLEXIBLE JOINT IN PIPES ADJACENT TO A MANHOLE SHALL BE A MAXIMUM OF 600mm FROM INSIDE FACE OF MANHOLE, CONNECTING TO ROCKER PIPE.
- PIPES SHOULD BE FIRMLY SUPPORTED THROUGHOUT THEIR LENGTH WITH APPROPRIATE BEDDING.
- ALL CONNECTIONS TO BE TURNED IN DIRECTION OF FLOW USING PIPE BENDS WITHIN THE MANHOLE.
- THE CONTRACTOR IS TO PROTECT EXISTING AND NEW BURIED PIPES (PARTICULARLY SHALLOW PIPES) AND TREE ROOTS FROM DAMAGE CAUSED BY LOADS IMPOSED BY CONSTRUCTION PLANT.
- BEDDING AND SURROUND TO BE AS FOLLOWS:

LOCATION	COVER TO SOFFIT	BEDDING
ROADS (HGV)	> 1.2m	CLASS '3' GRANULAR BED AND SURROUND
	< 1.2m	CLASS '2' CONCRETE AND SURROUND
ROADS (NO HGV)	> 0.9m	CLASS '3' GRANULAR BED AND SURROUND
	< 0.9m	CLASS '2' CONCRETE AND SURROUND
HARD & SOFT LANDSCAPING	> 0.9m	CLASS '3' GRANULAR BED AND SURROUND
	< 0.9m	CLASS '2' CONCRETE AND SURROUND

- WHERE RIGID PIPES HAVE TO BE ENCASED IN CONCRETE, MOVEMENT JOINTS OF 13mm THICK COMPRESSIBLE BOARD SHOULD BE PROVIDED AROUND THE SPIGOT NEXT TO THE SOCKET, EITHER AT EACH JOINT OR AT NOT MORE THAN 5m INTERVALS.
- SIDEFILL AND BACKFILL SHOULD BE PLACED AS SOON AS THE PIPES HAVE BEEN BEDDED, JOINED AND INSPECTED. FOR PROPRIETARY SYSTEMS, SIDEFILLING AND BACKFILLING SHOULD BE CARRIED OUT IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS. SIDEFILL AND BACKFILL SHOULD BE EITHER:
 - WELL GRADED GRANULAR MATERIAL (REF DCG) IN OR WITH 1m OF CARRIAGEWAY
 - OR
 - SELECTED BACKFILL MATERIAL FROM THE TRENCH EXCAVATION, IF FREE FROM:
 - STONES LARGER THAN 40mm
 - CLAY LUMPS LARGER THAN 100mm
 - TIMBER
 - FROZEN MATERIAL
 - VEGETABLE MATTER.
- GENERAL BACKFILL, NORMALLY THE EXCAVATED MATERIAL FROM THE TRENCH WILL BE SUITABLE FOR BACKFILLING ABOVE THE SELECTED MATERIAL.
- PLACING BACKFILL: BACKFILL SHOULD BE PLACED IN LAYERS NOT DEEPER THAN 225mm, AND SHOULD BE WELL COMPACTED. MECHANICAL COMPACTING SHOULD ONLY BE USED WHEN COMPACTED BACKFILL IS AT LEAST 450mm ABOVE THE CROWN OF THE PIPE.
- PIPES PASSING THROUGH SUBSTRUCTURE WALLS SHOULD ACCOMMODATE MOVEMENT. THIS MAY BE ACHIEVED BY:
 - A 50mm CLEARANCE ALL ROUND, OR
 - A SLEEVE WITH 50mm CLEARANCE ALL ROUND AND SUITABLY SEALED
 - IF BUILT IN, CONNECTING ON BOTH SIDES OF THE WALL TO PIPES WITH FLEXIBLE JOINTS LOCATED NOT MORE THAN 150mm

P0	INITIAL ISSUE	21.03.25	DK
Rev	Amendments	Date	By
Revisions			
Client			
 Link ENGINEERING Find us @ www.linkeng.co.uk			
Project LM3103 EAST GRINSTEAD			
Drawing PRIVATE DRAINAGE DETAILS			
Scale @ A1 AS SHOWN			
Drawn DK			
Checked TA			
Rev P0			

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Sheet
PLANNING (S5)