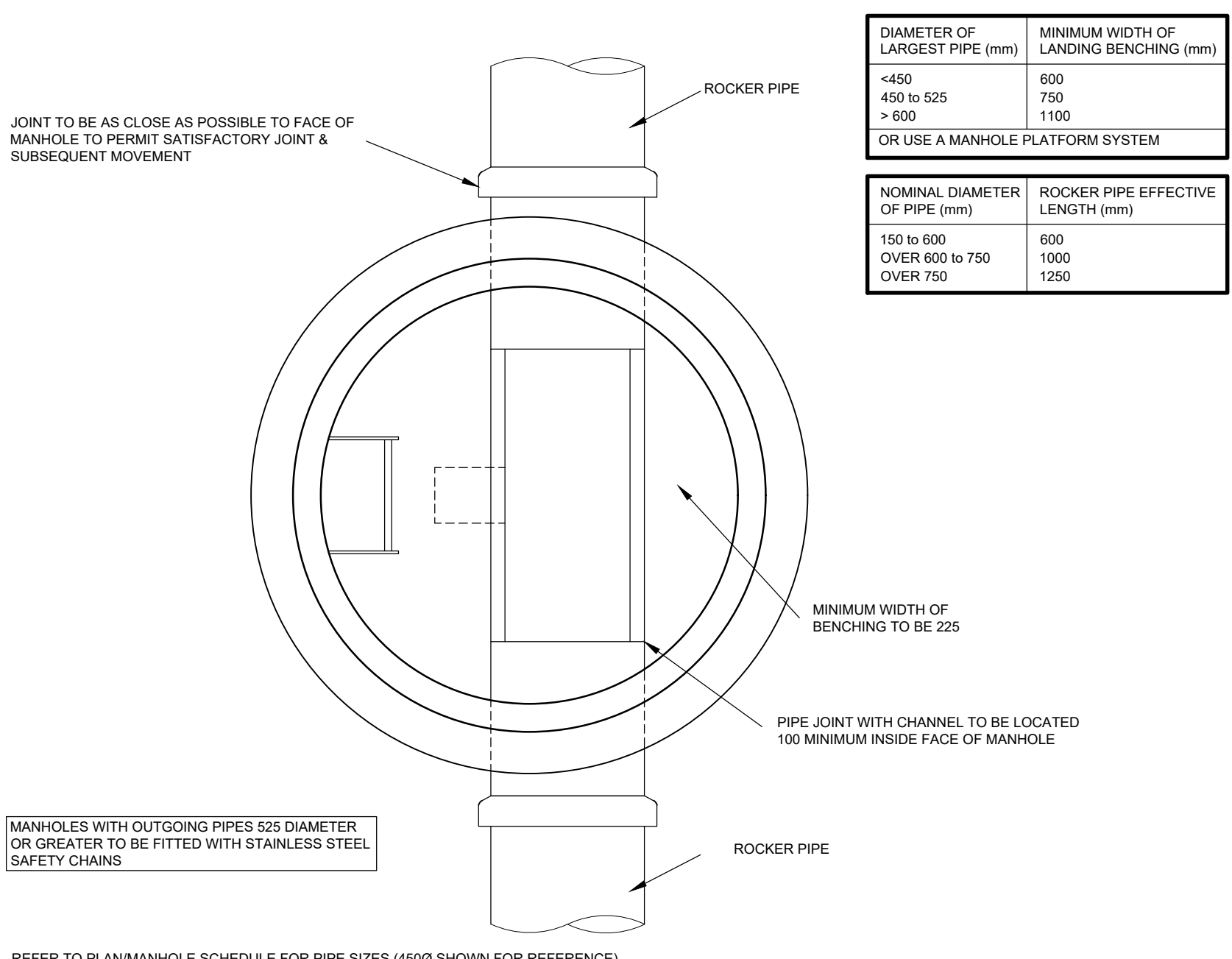
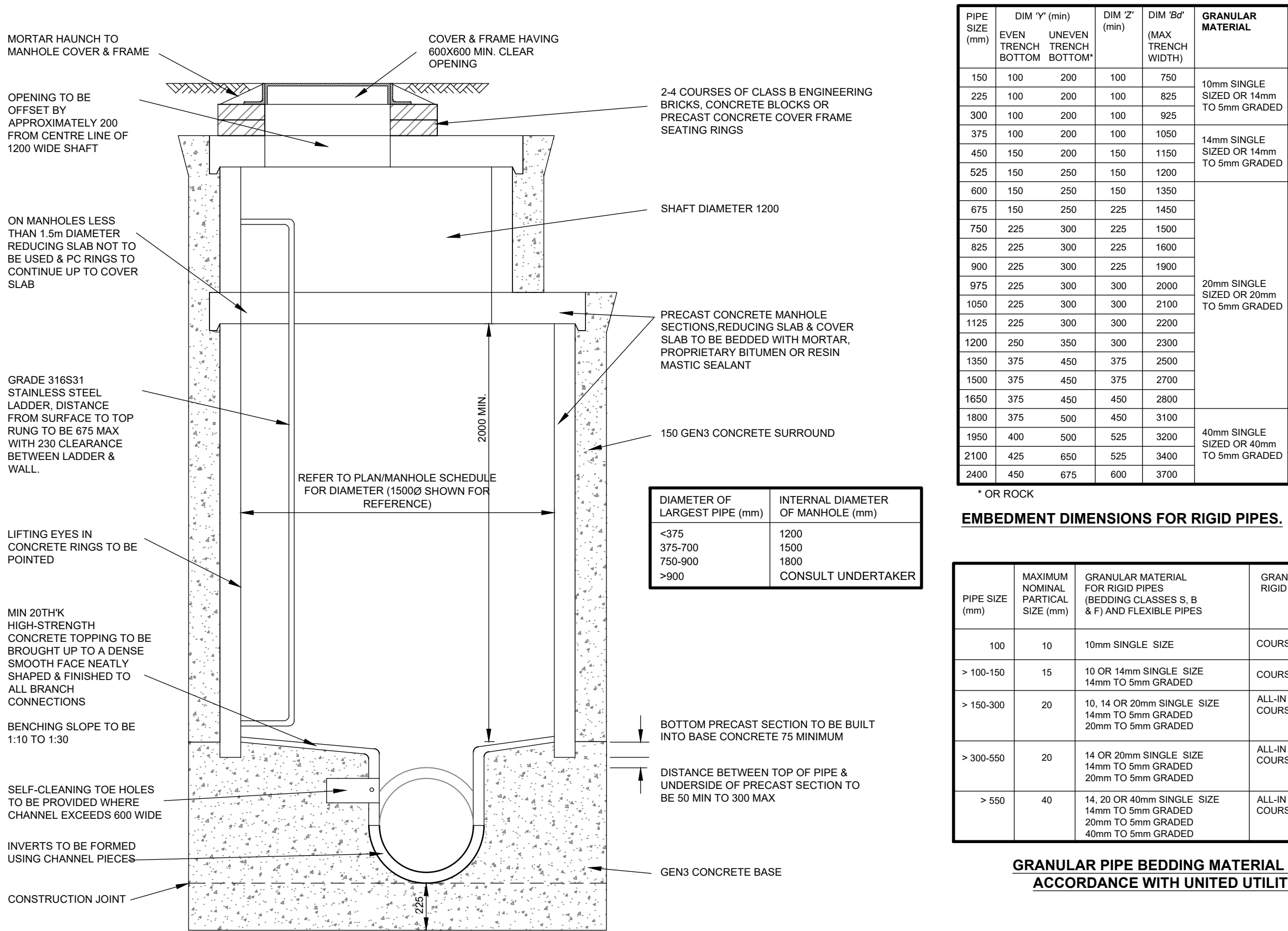




TYPICAL MANHOLE TYPE A1
SEWERAGE SECTOR GUIDANCE - FIGURE B5
DEPTH FROM COVER LEVEL TO SOFFIT OF PIPE 3m TO 6m
(SCALE 1:20)

PIPE SIZE (mm)	DIM 'Y' (min) EVEN TRENCH BOTTOM	DIM 'Y' (min) UNEVEN TRENCH BOTTOM	DIM 'Z' (min)	DIM 'Bd' (MAX TRENCH WIDTH)	GRANULAR MATERIAL
150	100	200	100	750	10mm SINGLE SIZED OR 14mm TO 5mm GRADED
225	100	200	100	825	
300	100	200	100	925	
375	100	200	100	1050	
450	150	200	150	1150	14mm SINGLE SIZED OR 14mm TO 5mm GRADED
525	150	250	150	1200	
600	150	250	150	1350	
675	150	250	225	1450	
750	225	300	225	1500	
825	225	300	225	1600	
900	225	300	225	1900	
975	225	300	300	2000	
1050	225	300	300	2100	
1125	225	300	300	2200	
1200	250	350	300	2300	
1350	375	450	375	2500	
1500	375	450	375	2700	
1650	375	450	450	2800	
1800	375	500	450	3100	
1950	400	500	525	3200	
2100	425	650	525	3400	
2400	450	675	600	3700	

* OR ROCK

EMBEDMENT DIMENSIONS FOR RIGID PIPES.

PIPE SIZE (mm)	MAXIMUM NOMINAL SIZE (mm)	GRANULAR MATERIAL FOR RIGID PIPES (BEDDING CLASSES S, B & F) AND FLEXIBLE PIPES	GRANULAR MATERIAL FOR RIGID PIPES (BEDDING CLASS N)
100	10	10mm SINGLE SIZE	COURSE, MEDIUM OR FINE SAND
> 100-150	15	10 OR 14mm SINGLE SIZE 14mm TO 5mm GRADED	COURSE, MEDIUM OR FINE SAND
> 150-300	20	10, 14 OR 20mm SINGLE SIZE 14mm TO 5mm GRADED 20mm TO 5mm GRADED	ALL-IN AGGREGATE COURSE, MEDIUM OR FINE SAND
> 300-550	20	14 OR 20mm SINGLE SIZE 14mm TO 5mm GRADED 20mm TO 5mm GRADED	ALL-IN AGGREGATE COURSE, MEDIUM OR FINE SAND
> 550	40	14, 20 OR 40mm SINGLE SIZE 14mm TO 5mm GRADED 20mm TO 5mm GRADED 40mm TO 5mm GRADED	ALL-IN AGGREGATE COURSE, MEDIUM OR FINE SAND

GRANULAR PIPE BEDDING MATERIAL ALL IN ACCORDANCE WITH UNITED UTILITIES.

PIPE SIZE (mm)	DIM 'Y' (min) EVEN TRENCH BOTTOM	DIM 'Y' (min) UNEVEN TRENCH BOTTOM	DIM 'Bd' (MIN TRENCH WIDTH)
<400	100	200	'Bc' + 300
400-700	150	250	'Bc' + 450
725-900	200	300	'Bc' + 600
900-1200	250	350	'Bc' + 800

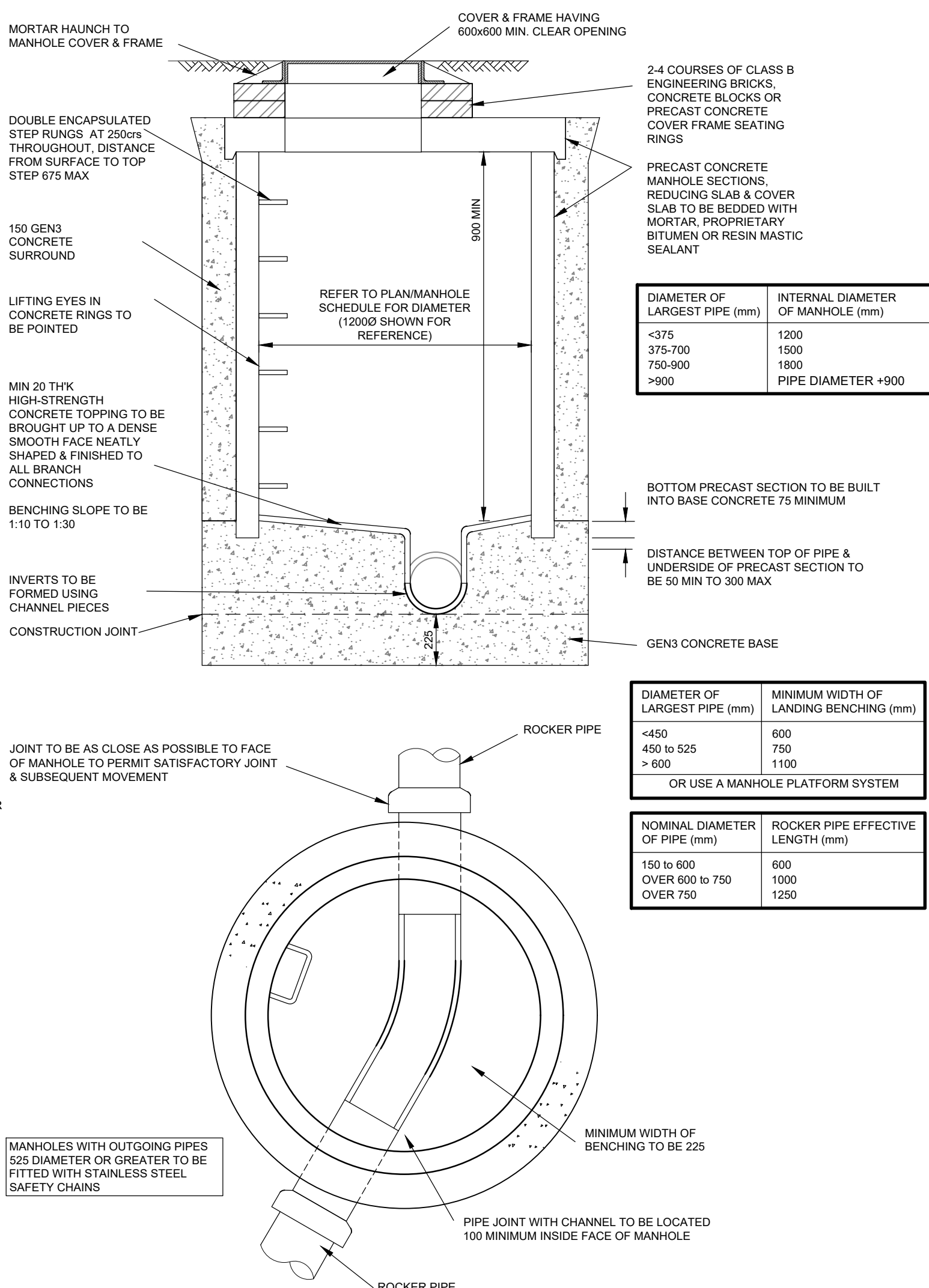
* OR ROCK

EMBEDMENT DIMENSIONS FOR FLEXIBLE & SEMI-RIGID PIPES.

Minimum Depth Of Granular Fill Under Pipe Socket To Be 50mm For Even Trench Bottom & 150mm For Uneven Or Rock Trench Bottom.

Dim 'Bc' = Outside Diameter Of Pipe
Dim 'Bd' = Effective Trench Width Measured 300mm Above Crown Of Pipe.

MAIN BACKFILL TO BE:
HARDSTANDING AREAS: DETR TYPE 1 GRANULAR MATERIAL
SOFT LANDSCAPE AREAS: SELECTED BACKFILL MATERIAL UP TO UNDERSIDE OF TOP-SOIL



TYPICAL MANHOLE TYPE B
SEWERAGE SECTOR GUIDANCE - FIGURE B10
MAXIMUM DEPTH FROM COVER TO SOFFIT OF PIPE 3.0m
(SCALE 1:20)

		VARIABLE FEATURES										
A	MANHOLE SHAFT AND LADDER/DOUBLE STEP ACCESS	- FOR 1200, 1350 & 1500 MANHOLE CHAMBERS (OR WHERE THE DEPTH TO SOFFIT IS < 3m) A FULL HEIGHT (NO ACCESS SHAFT) CONSTRUCTION IS TO BE USED - FOR DEPTHS TO BENCHING FROM COVER LEVEL < 3m DOUBLE STEP ACCESS IS TO BE USED - FOR MANHOLES DEEPER THAN 3m TO BENCHING A LADDER IS REQUIRED - FOR DOUBLE STEP ACCESS MINIMUM INTERNAL MANHOLE ACCESS SHAFT DIAMETER IS TO BE 1050 - FOR LADDER ACCESS MINIMUM INTERNAL SHAFT DIAMETER IS TO 1200										
B	MANHOLE COVER	DEPTH TO SOFFIT FROM COVER LEVEL < 1.5m - MINIMUM CLEAR OPENING SIZES: 750x750 ON 1050 & 1200 CHAMBER/SHAFT 1200x675 ON 1350 OR GREATER CHAMBER/SHAFT - BENEATH ALL MAN-ACCESS COVERS GREATER THAN 600x600 A RETRACTABLE SAFETY HANDHOLD SHALL BE PROVIDED EXTENDING 1200 ABOVE GROUND LEVEL					DEPTH TO SOFFIT FROM COVER LEVEL ≥ 1.5m MINIMUM CLEAR OPENING SIZES: 600x600 FOR DOUBLE STEP ACCESS 600x600 FOR LADDER ACCESS 750x600 FOR FEATURE LADDER ACCESS					
	COVER SLAB CHAMBER DIA: 1050 1200 1350 - 1500 1800 & ABOVE	HOLE SIZE IN COVER SLAB	COVER FRAME SEATING RING ON COVER SLAB DOUBLE STEP ACCESS			HOLE SIZE IN COVER SLAB	COVER FRAME SEATING RING ON COVER SLAB DOUBLE STEP ACCESS			LADDER ACCESS		
		750x750 c.o. 750x750 e.o. 1200x675 c.o. 1200x675 e.o.	750x750 c.o. 750x750 e.o. 1200x675 c.o. 1200x675 e.o.	600x600 e.o. 750x600 e.o. 750x600 e.o. 750x600 e.o.	TYPE 1 - 600x600 e.o. TYPE 1 - 600x600 e.o. TYPE 1 - 600x600 e.o. TYPE 1 - 600x600 e.o.			NOT APPLICABLE TYPE 1 - 600x600 e.o. TYPE 1 - 600x600 e.o. TYPE 1 - 600x600 e.o.				
		NOTE: FOR LADDER ACCESS THE ECCENTRIC SEATING RING IS TURNED THROUGH 180° c.o = CENTRAL OPENING e.o = ECCENTRIC OPENING										
		REDUCING SLAB										
		CHAMBER DIA: 1200 - 1500 1800 & ABOVE	HOLE DIAMETER IN REDUCING SLAB: REDUCING SLAB NOT USED 1050 FOR DOUBLE STEP ACCESS OR 1200 FOR LADDER ACCESS									
FEATURES RELATED TO PIPE DIAMETER		DIAMETER OF LARGEST PIPE										
		225	300	375	450	525	600	675	750	825 & ABOVE		
C	ROCKER PIPES	EFFECTIVE LENGTH 600						EFFECTIVE LENGTH 1250*				
D	BENCHING WIDTH	MINIMUM 600			MINIMUM 750			MINIMUM 1100				
E	BENCHING RAILINGS	NOT REQUIRED						REQUIRED				
F	SEWER SAFETY CHAINS	NOT REQUIRED						REQUIRED				
G	INVERT ACCESS STEP	NOT REQUIRED						REQUIRED WITH DOUBLE STEPS				
H	CHANNEL FITTINGS	VITRIFIED CLAY				NOT REQUIRED (CHANNELS FORMED USING GRANOLITHIC CONCRETE)						

* ROCKER PIPES TO BE USED UNTIL THE PIPE EXCEEDS THE EFFECTIVE LENGTH OF THE ROCKER PIPE

MANHOLE ACCESS DETAILS

Notes
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GENERAL NOTES

- THE STRUCTURAL DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ALL RELEVANT CLIENT, ARCHITECT, SERVICES ENGINEER, AND SPECIALIST CONTRACTOR DRAWINGS, REPORTS AND SPECIFICATIONS.
- FOR SETTING OUT AND LEVELS REFER TO ARCHITECTS DRAWINGS.
- FOR THE PURPOSE OF CONSTRUCTION ALL DRAWINGS MUST NOT BE SCALED AND ONLY WRITTEN OR CALCULATED DIMENSIONS USED. LEVEL DATUMS TO BE CONFIRMED BY THE ARCHITECT.
- ANY REVISIONS TO THE LAYOUT DETAILS REQUIRED BY THE CONTRACTOR TO BE AGREED AND APPROVED BY THE ALIGN PROPERTY PARTNERS ENGINEER.
- FINISHED FLOOR LEVELS TO BE DETERMINED.
- ALL PROPRIETARY PRODUCTS ARE TO BE USED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S DETAILS AND REQUIREMENTS.
- GENERALLY, ONLY KNOWN PENETRATIONS, HOLES, POCKETS AND RECESSES ETC. WITH ANY DIMENSIONS GREATER THAN 150 ARE SHOWN ON THE DRAWINGS. FOR CONFIRMATION OF THESE AND FOR DETAILS OF SMALLER HOLES PLUS INSERTS, FIXINGS ETC. REFERENCE SHALL BE MADE TO THE ARCHITECT'S SERVICES ENGINEERS OR THE RELEVANT SUBCONTRACTOR'S BUILDERS WORK DRAWINGS.
- THE CONTRACTOR SHALL ENSURE THAT TEMPORARY LOADS ONTO THE NEW STRUCTURES/DRAINAGE SHALL BE LESS THAN THOSE FOR WHICH IT HAS BEEN DESIGNED.
- THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND CHECKING THE SETTING OUT OF GRIDLINES, LEVELS AND DATUMS.
- ANY DISCREPANCIES BETWEEN THE STRUCTURAL AND ARCHITECTURAL DRAWINGS SHOULD IMMEDIATELY BE BROUGHT TO THE ATTENTION OF THE CONTRACT ADMINISTRATOR.
- THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT NOISE, VIBRATION AND DUST RESULTING FROM THE WORKS ARE KEPT WITHIN REASONABLE LIMITS.
- THE CONTRACTOR IS TO ALLOW A MINIMUM OF 10 WORKING DAYS IN THEIR PROGRAMME FOR THE REVIEW OF ANY CONTRACTOR'S DESIGN PORTIONS OF WORK FOR REVIEW BY THE ALIGN PROPERTY PARTNERS ENGINEER.
- IRRESPECTIVE OF ANY NAMED MANUFACTURERS OF ANY PRODUCT/MATERIAL NOTED ON DRAWINGS, THE CONTRACTOR IS FREE TO PROPOSE AN EQUAL OR APPROVED PRODUCT/MATERIAL PROVIDED THAT ANY SUCH CHANGE TO THE SPECIFICATION MEETS A SIMILAR LEVEL OF PERFORMANCE AND IS NOTED ON ALL TENDER RETURNS AND DOCUMENTATION FOR ALIGN PROPERTY PARTNERS.

IMPORTANT:

DRAWING PROVIDED FOR INFORMATION ONLY AND IS SUBJECT TO THE FOLLOWING STATUTORY APPROVALS:

- PLANNING APPROVAL
- BUILDING CONTROL
- UNITED UTILITIES APPROVAL
- HIGHWAYS APPROVAL

ALL CONSTRUCTION WORKS PRIOR TO APPROVALS ABOVE WILL BE UNDERTAKEN AT CLIENTS/CONTRACTORS RISK

P02	ADDED DRAINAGE TABLES	JM	ZS	ZS
		27/09/23	27/09/23	27/09/23
P01	INITIAL ISSUE	ZS	LF	LF
		19/09/23	19/09/23	19/09/23
Rev	Details	Author & Date	Checked & Date	Approved & Date
Westmorland & Furness Office, Riverside Business Park, Natland Road, Kendal LA9 7SX				
Client				
Project Name				
MOSSCARE ST VINCENTS				
Drawing Title				
S104 DRAINAGE CONSTRUCTION DETAILS SHEET 1 OF 2				
Purpose				
PLANNING				
Scale	Drawn	Checked	Approved	
AS SHOWN	ZS	LF	LF	
Original Size	Date	Date	Date	
A1	19/09/23	19/09/23	19/09/23	
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