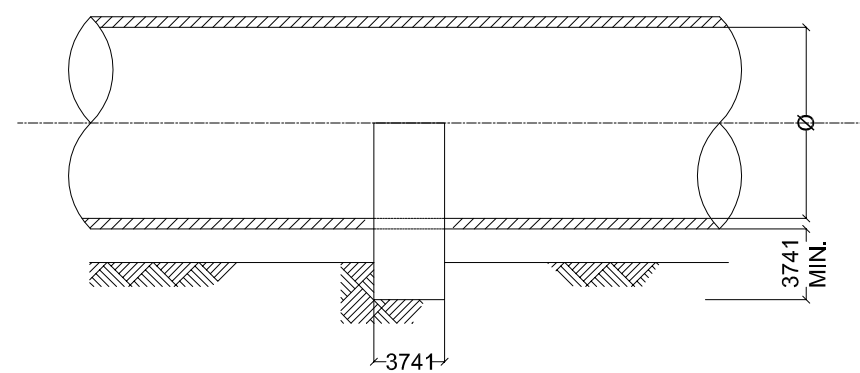
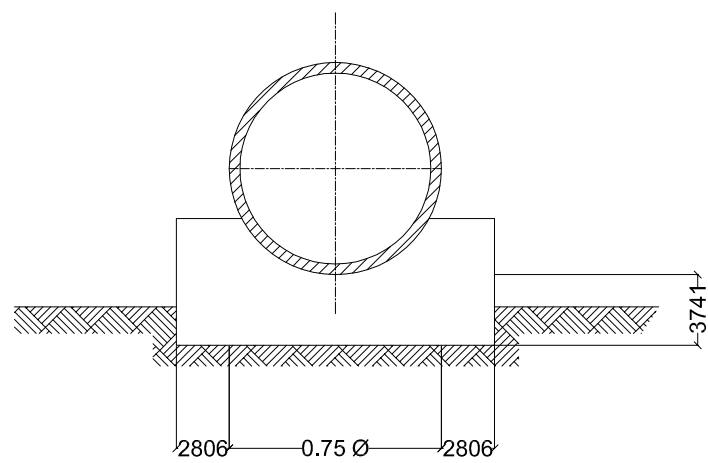


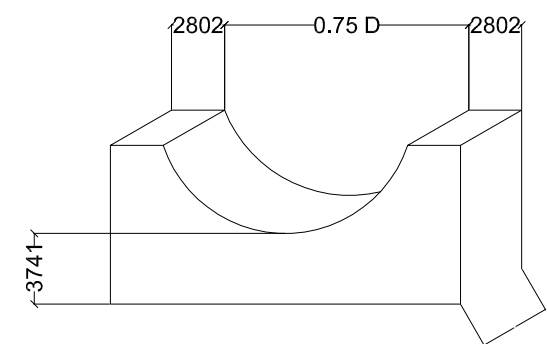
PLAN VIEW



SECTION A-A

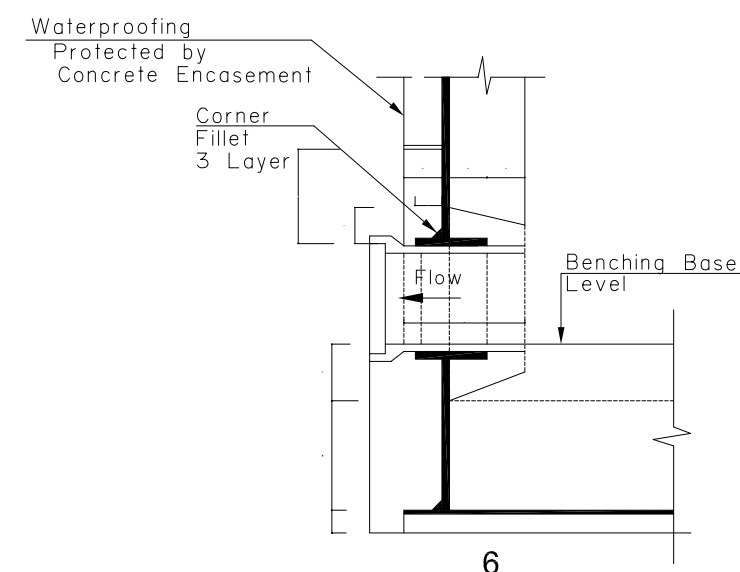
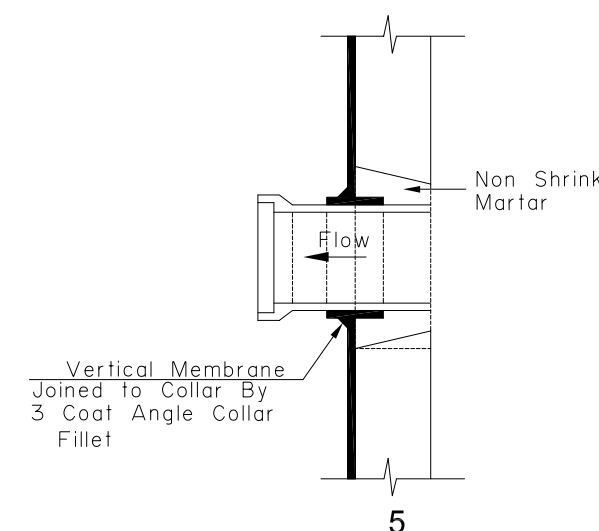
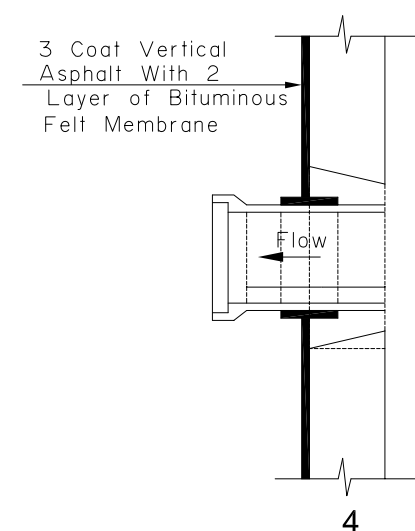
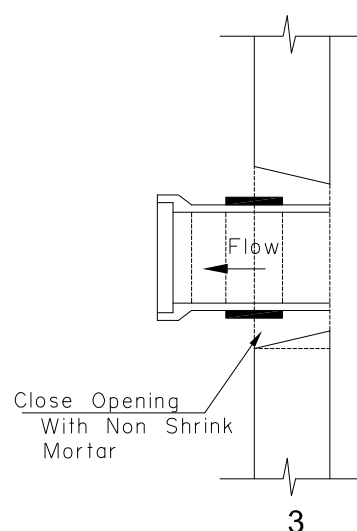
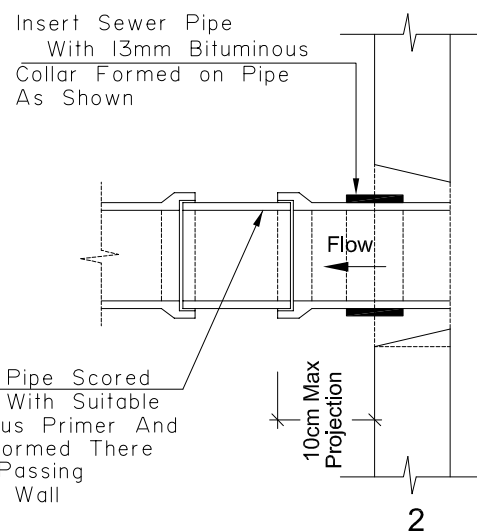
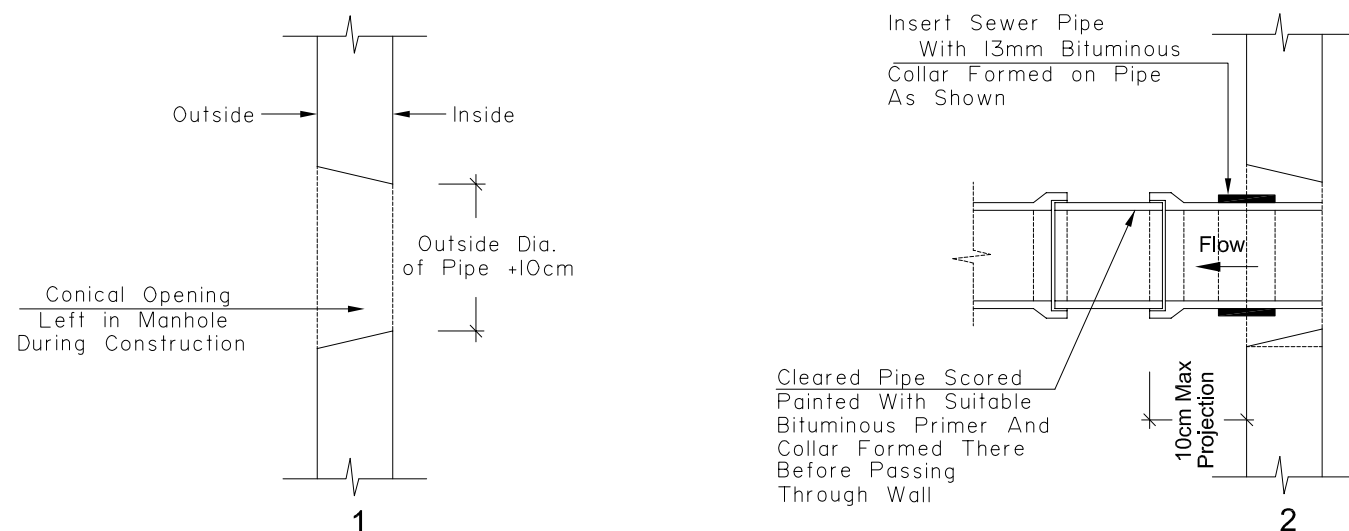


SECTION B-B

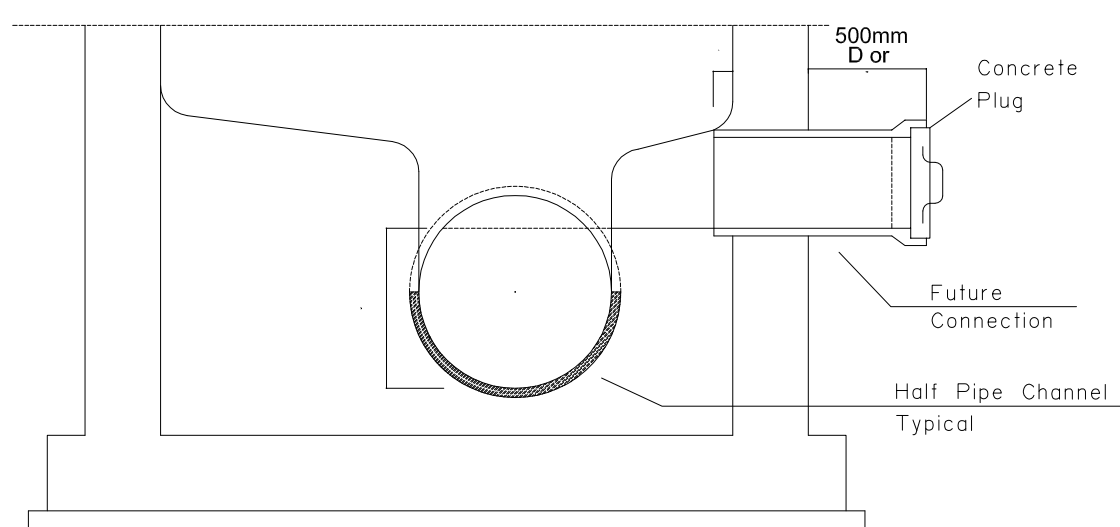


PRECAST CONCRETE PIPE SUPPORT

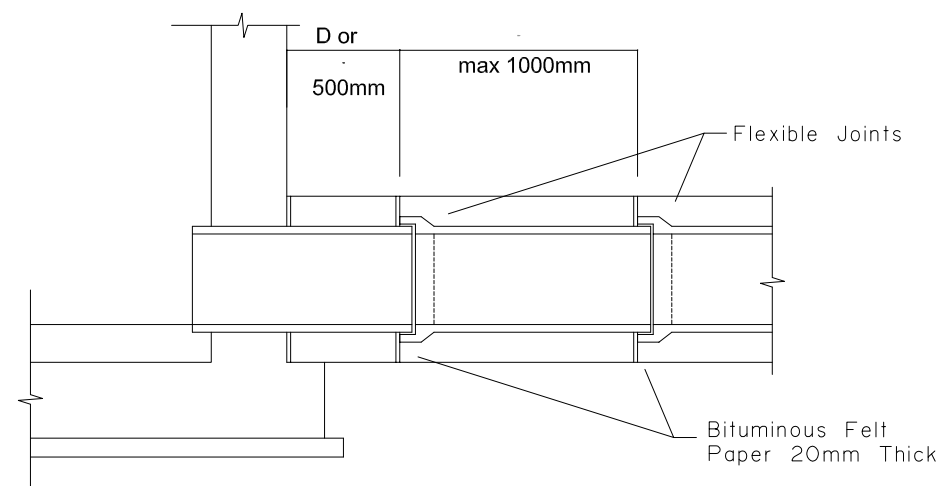
## PRECAST CONCRETE PIPE SUPPORT



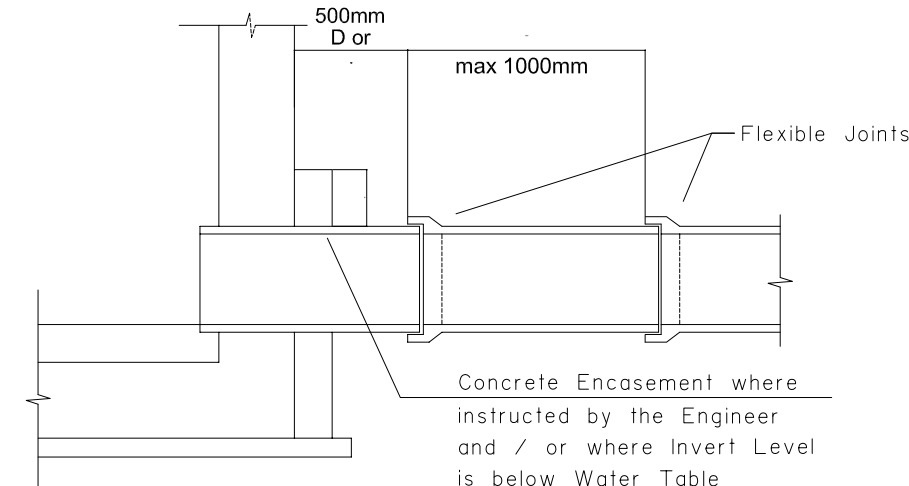
## CONSTRUCTION METHOD FOR WATERPROOFING PIPE INLET OR OUTLET TO MANHOLE



TYPICAL FUTURE CONNECTION

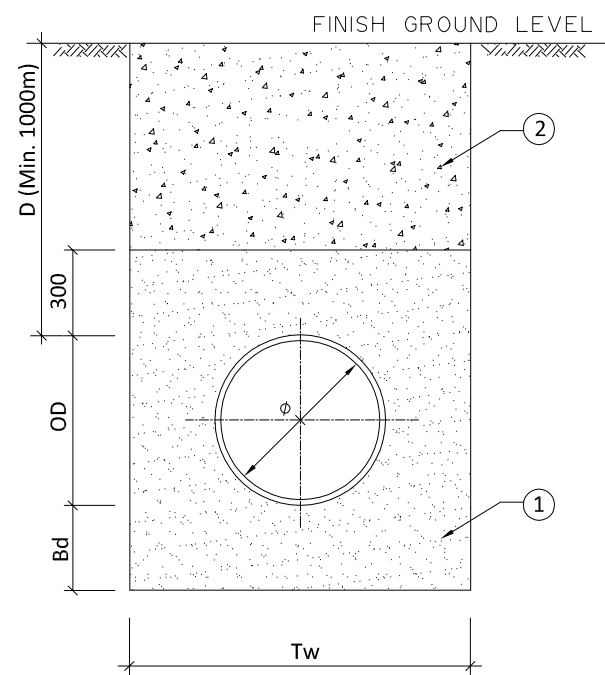


A- FOR PIPES IN CONCRETE SURROUND

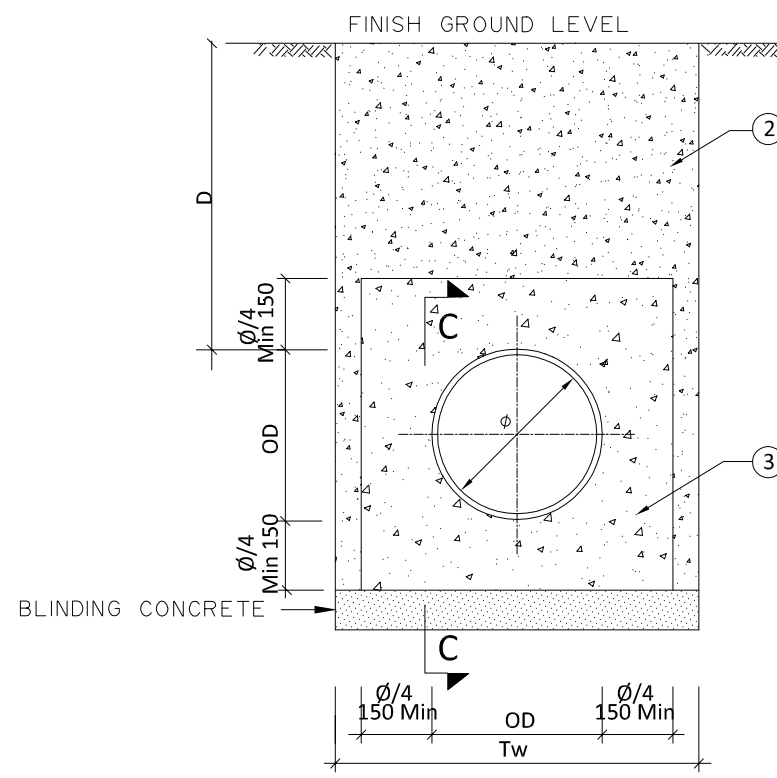


B- FOR PIPES IN ORDINARY BACKFILL

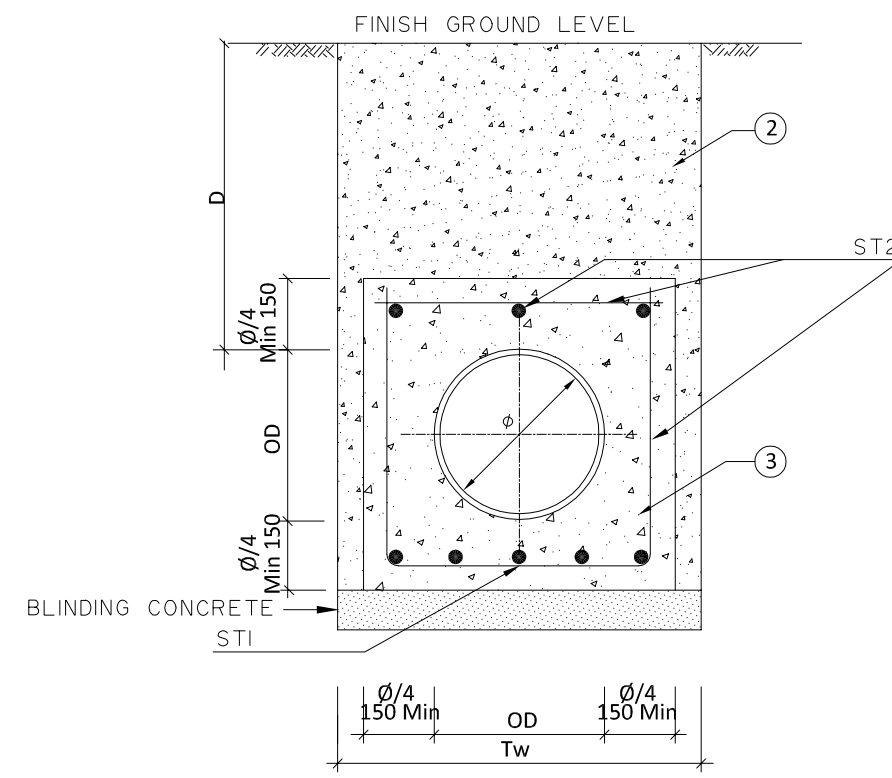
## FLEXIBLE JOINT DETAIL



TYPE "A"



TYPE "B"



5000 > DEPTH OF COVER > 900mm.

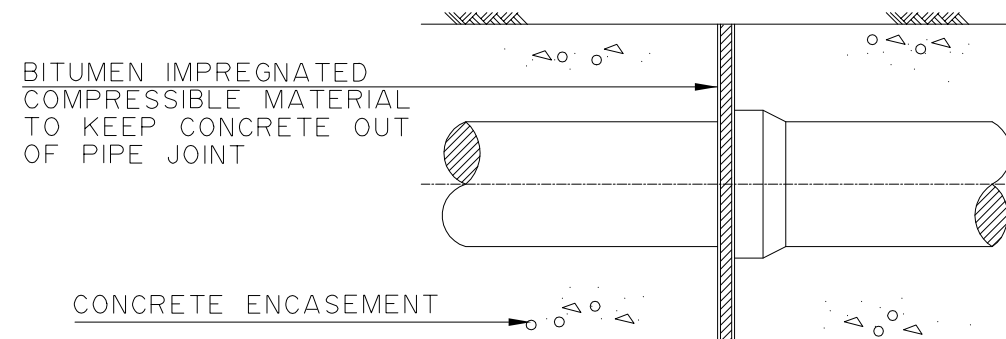
DEPTH OF COVER < 1000mm.  
DEPTH OF COVER > 4000mm.

### NOTE:

- 1- OD = EXTERNAL DIAMETER OF PIPE.
- 2- D = DEPTH OF COVER (m.)  
a- FOR PRESSURE NETWORKS D= 1.0m.  
b- FOR GRAVITY NETWORKS REFER TO PROFILES.
- 3-  $\phi < 500$  TW = OD + 500  
 $600 \leq \phi < 900$  TW = OD + 1000  
 $\phi > 1000$  TW = OD + 1200
- 4- DEPTH OF BEDDING = Bd  
Bd = 150mm. IN SOIL  
Bd = 250mm. IN ROCK  
Bd = 200mm. For  $\phi \geq 1000$
- 5- USE TYPE "A" BEDDING FOR ALL NETWORKS EXCEPT FOR THE FOLLOWING CASES WHERE TYPE "B" SHOULD BE USED.  
a- DEPTH OF COVER IS LESS THAN OR EQUAL TO 1m.  
b- UNDER STREET LIGHTING POLES.  
c- AT SEWER LINE / WATER LINE CROSSING. WHERE VERTICAL DISTANCE LESS THAN 0.5m. THE SEWER PIPE SHALL BE ENCASED FOR A DISTANCE OF AT LEAST 4.0m ON EACH SIDE OF THE WATER PIPE.  
d- DEPTH OF COVER FOR GREATER THAN 4.00m.
- 6- WHEN POURING CONCRETE THE PIPE MUST BE RESTRAINED AGAINST MOVEMENT BY STRAPPING IT TO A BASE SLAB, OR ANCHOR.

PIPE DIAMETER $\phi$ mm	ST1	ST2
$\phi \leq 600$	T10@150mm	$\phi 8@200$ mm
$600 < \phi \leq 1000$	T12@120mm	$\phi 8@200$ mm
$1000 < \phi \leq 1200$	T16@120mm	$\phi 8@200$ mm

TYPE OF BEDDING / FILLING MATERIAL	
①	SAND FILL BEDDING MATERIAL OR GRANULAR MATERIAL WELL COMPACTED UNDER AND AROUND THE PIPE OR CRUSHED AGGREGATE 3-8mm. (REFER TO SPECIFICATION FOR GRADATION)
②	MATERIAL SELECTED FROM TRENCH EXCAVATION WELL COMPACTED TO 95 % OF MAXIMUM DRY DENSITY
③	MASS CONCRETE CLASS II/25



SECTION C-C

FLEXIBLE JOINT FOR CONCRETE SURROUND

## 1 TYPICAL TRENCH AND PIPE BEDDING DETAILS

## 2

### NOTES

1. ALL DIMENSIONS ARE IN MILLIMETER, UNLESS OTHERWISE INDICATED
2. ALL INFORMATION PROVIDED IS INDICATIVE. DETAILED STRUCTURAL DESIGN AND ARCHITECTURAL SHOP DRAWINGS ARE TO BE PREPARED BY THE CONTRACTOR AND SUBMITTED FOR APPROVAL TO THE ENGINEER.
3. ALL CONCRETE SHALL BE SULFATE RESISTING PORTLAND CEMENT TYPE V WITH A MINIMUM CYLINDRICAL COMPRESSIVE STRENGTH AT 28 DAYS FOR :  
CLASS A - REINFORCED & BENCHING CONCRETE = 280 kg / cm<sup>2</sup>  
CLASS B - WHERE INDICATE CONCRETE = 175 kg / cm<sup>2</sup>  
CLASS C - BLINDING & MASS CONCRETE = 105 kg / cm<sup>2</sup>
4. WATER PROOFING FOR CONCRETE SHALL BE IN THREE LAYERS FOR SURFACE BITUMINOUS COATING APPLIED TO EXTERNAL SURFACES OF MANHOLE WALLS, AND DOUBLE SURFACE COAL TAR EPOXY COATING APPLIED TO INTERNAL SURFACES OF MANHOLE WALLS.
5. MINIMUM CONCRETE COVER TO STEEL REINFORCEMENT SHALL BE =50mm.
6. ALL REINFORCING STEEL BARS SHALL BE DEFORMED HIGH GRADE STEEL HAVING A MINIMUM YIELD STRENGTH OF 4200Kg/cm<sup>2</sup>, AND MILD STEEL HAVING A MINIMUM YIELD OF 2800kg/cm<sup>2</sup>.
7. LAP LENGTH SHALL NOT BE LESS THAN 50 TIMES THE DIAMETER WHERE SPLICE BARS ARE USED, THEIR LENGTH SHALL NOT BE LESS THAN 2x50 DIAMETER.
8. LAPS SHALL BE STAGGERED FROM ONE HOOP TO THE OTHER AND/OR ONE BAR TO THE OTHER IN ORDER TO REDUCE THE NUMBER OF LAPS IN THE SAME SECTION STIRRUPS  $\phi 8$  SHALL BE USED ON EACH LAP.
9. ADDITIONAL REINFORCEMENT AROUND OPENINGS SHALL BE PROVIDED BY THE CONTRACTOR UP TO THE APPROVAL OF THE ENGINEER.
10. BENDING OF REINFORCEMENT BARS SHALL BE MECHANICAL FOR DIAMETERS GREATER THAN 12mm AND MANUAL FOR LESS. STRAIGHTENING OF BENDED BARS IS NOT ALLOWED.
11. HOLES MADE BY THE RODS SHALL BE FILLED WITH NON-SHRINK GROUT.
12. ALL PIPES CROSSING THROUGH CONCRETE WALLS SHALL BE PROVIDED WITH A 2cm THICK EXPANSIVE MATERIAL (TAR BASED) OR AS APPROVED BY THE ENGINEER
13. WHERE THERE IS A DISCREPANCY BETWEEN THE REQUIREMENTS IN THE SPECIFICATION AND THOSE SHOWN ON THIS DRAWING, THE SPECIFICATION SHALL BE FOLLOWED UNLESS DIRECTED OTHERWISE BY THE ENGINEER.
14. ALL JOINTS BETWEEN PIPES, FIXTURES AND LINING MATERIAL SHALL BE SEALED.
15. ALL JOINTS BETWEEN PIPES AND CONCRETE SHALL BE WATERTIGHT.

o	M.N	11-12-2015	GENERAL REVISION	M.N
REV	BY	Date	Description	Appr.
PROJECT NBR.		L1505		
PROJECT PHASE		TENDER		
DISCIPLINE		CIVIL ENGINEERING		
SECTOR				
BUILDING				
DESIGNED		M.N		
DRAWN		M.N		
CHECKED		M.N		
APPROVED				
DATE		11-12-2015		
SCALE		N.T.S		
SHEET SIZE		A1		

Title				
TAL ABBAS EL GHARBI SEWAGE NETWORK				
SEWAGE TYPICAL DETAILS				
Sheet 4 OF 4				
L1505-PH1-SW-13-REV.0				
Project Number	Phase	Type	Drawing Number	Revision

## 4