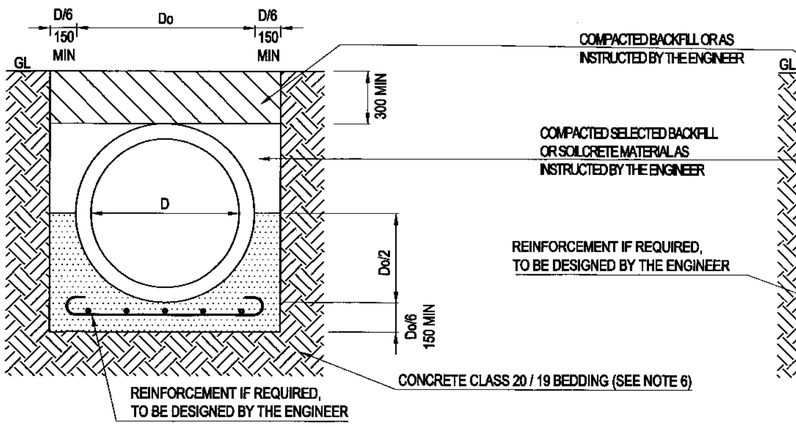
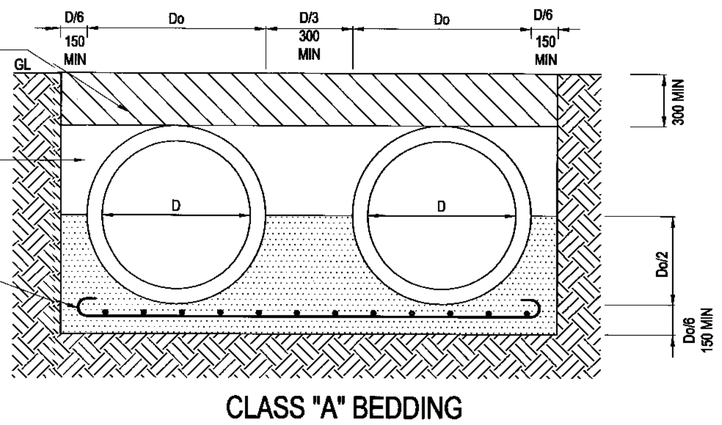


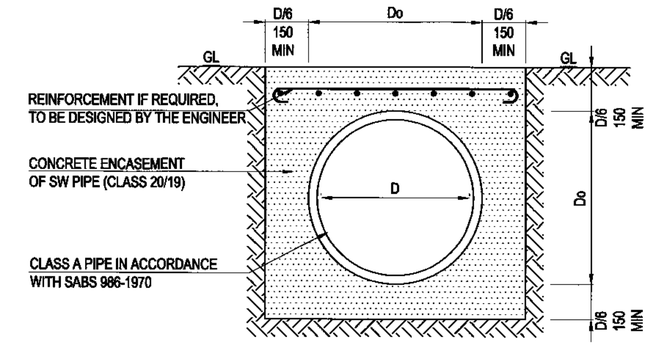

## CLASS "A" BEDDING FOR SOFT EXCAVATIONS (SINGLE PIPE)

N.T.S.



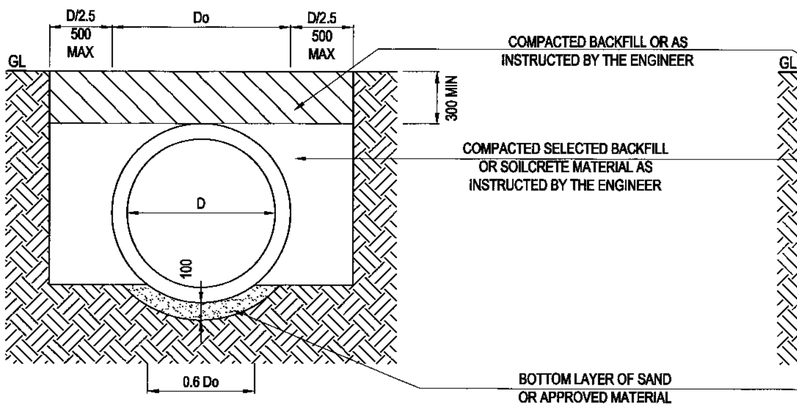

## CLASS "A" BEDDING FOR SOFT EXCAVATIONS (DOUBLE PIPE)

N.T.S.



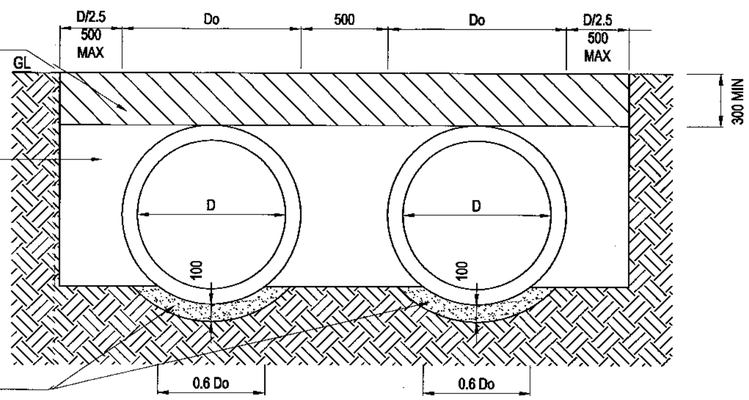

## CONCRETE ENCASEMENT OF PIPES

SCALE : N.T.S.



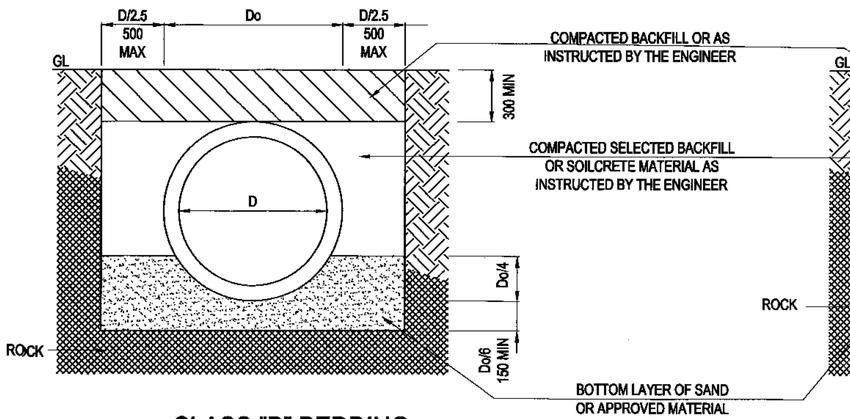

## CLASS "B" BEDDING FOR SOFT EXCAVATIONS (SINGLE PIPE)

N.T.S.



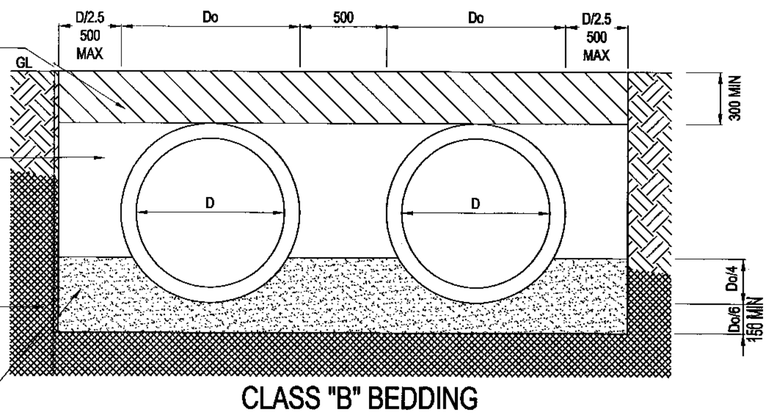

## CLASS "B" BEDDING FOR SOFT EXCAVATIONS (DOUBLE PIPE)

N.T.S.




## CLASS "B" BEDDING FOR HARD EXCAVATIONS (SINGLE PIPE)

N.T.S.




## CLASS "B" BEDDING FOR HARD EXCAVATIONS (DOUBLE PIPE)

N.T.S.

LEGEND:

- H = TOTAL COVER OVER THE PIPE BELOW THE FINAL ROAD LEVEL
- D = INTERNAL BARREL DIMENSION
- Do = OUTSIDE BARREL DIMENSION
- GL = GROUND LEVEL MEANING EITHER OF THE FOLLOWING:
  AN INTERMEDIATED FILL LEVEL IN ORDER TO PROVIDE THE MINIMUM COVER OVER THE PIPE FOR A TRENCH CONDITION OR THE UNDERSIDE OF THE SELECTED SUBGRADE OR SUBBASE.

NOTES:

1. ALL CONCRETE PIPES SHALL COMPLY WITH THE REQUIREMENTS OF SANS 667 - 1986, STANDARD SPECIFICATIONS FOR NON-PRESSURE PIPES.
2. THE BEDDING TYPE SHALL BE DESIGNED IN ACCORDANCE WITH SANS 0102 PART II - 1987 IN CONJUNCTION WITH THE CONCRETE PIPE AND PORTAL CULVERT HANDBOOK (2006 REVISION) OF THE CONCRETE MANUFACTURERS
3. THE PIPE CLASS MUST BE DETERMINED FROM THE WEIGHT OF THE PRISM OF FILL ABOVE THE CULVERT PLUS THE SNABC LOADINGS IN ACCORDANCE WITH TMH 7 (PARTS 1 & 2) "CODE OF PRACTICE FOR THE DESIGN OF HIGHWAY BRIDGES AND CULVERTS IN SOUTH AFRICA".
4. THE MAXIMUM WHEEL LOAD ALLOWED ON THE PIPE IS 90 KN WITH A MINIMUM FILL OF 300MM ON TOP OF THE PIPE.
5. CONCRETE IN CLASS A BEDDING AND IN CONCRETE ENCASEMENT SHALL BE CLASS 20/19.
6. CONCRETE IN CLASS A BEDDING CAN EITHER BE REINFORCED OR UN-REINFORCED DEPENDING ON THE PREVAILING CONDITIONS.
7. MINIMUM 300MM SELECTED BACKFILL OR SOILCRETE MATERIAL OVER PIPES.
8. IN CASES WHERE H < 600MM THE PIPE SHALL BE ENCASED IN CLASS 20/19 CONCRETE AS SHOWN

| NOMINAL PIPE DIA (D) Ø | DIA OUTSIDE (Do) (approx) | SIDE ALLOWANCE PER SIDE | | |
|---|---|---|---|---|
| | | ENCASE 150min | BEDDING | |
| | | | CLASS A Do/6 150min | CLASS B Do/2.5 150max |
| 600 | 700 | 150 | 150 | 275 |
| 750 | 870 | 150 | 150 | 350 |
| 900 | 1030 | 175 | 175 | 400 |
| 1050 | 1195 | 200 | 200 | 500 |
| 1200 | 1360 | 225 | 225 | 500 |
| 1350 | 1525 | 250 | 250 | 500 |
| 1500 | 1680 | 300 | 300 | 500 |

**FOR LATEST VERSION CHECK www.nra.co.za**

| No. | DATE | VERSION / REVISION | APPROVED |
|---|---|---|---|
| V1 | SEPT 2014 | ORIGINAL VERSION | |


**SANRAL TYPICAL DRAWINGS**

**COPYRIGHT:** THIS DRAWING IS PROTECTED IN TERMS OF THE COPYRIGHT ACT No. 98 OF 1978 AND MAY NOT BE REPRODUCED WITHOUT PERMISSION IN WRITING FROM SANRAL.
**CONDITIONS FOR USE:** CONSULTANTS APPOINTED BY SANRAL SHALL INCORPORATE THE TYPICAL DETAILS HEREON INTO THEIR SPECIFIC DESIGN FOR WHICH THEY WILL ASSUME FULL PROFESSIONAL RESPONSIBILITY. THIS TYPICAL DRAWING MAY NOT BE USED FOR TENDER PURPOSES.



THE SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg. No. 1998/009884/30

HEAD OFFICE
48 Tambotie Avenue
Val de Grace
Pretoria
0184

PO Box 415
Pretoria 0001
South Africa

Tel: (012) 844 8000


APPROVED

DATE: 2015/06/26

**TYPICAL DRAWINGS - DRAINAGE**

**MISCELLANEOUS PIPE LAYING DETAIL**

SANRAL DOC. No. (PDF): 1693808

SANRAL DOC. No. (DWG): 1797256

SANRAL DRAWING No.: TD-D-MS-1001-V1