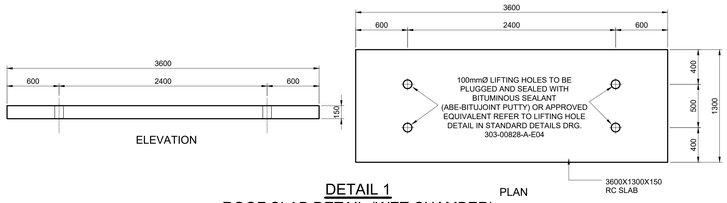
NOTE:
ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
REFER ANY DISCREPANCIES TO THE ENGINEER.

## SCHEDULE 2 - ANCILLARIES

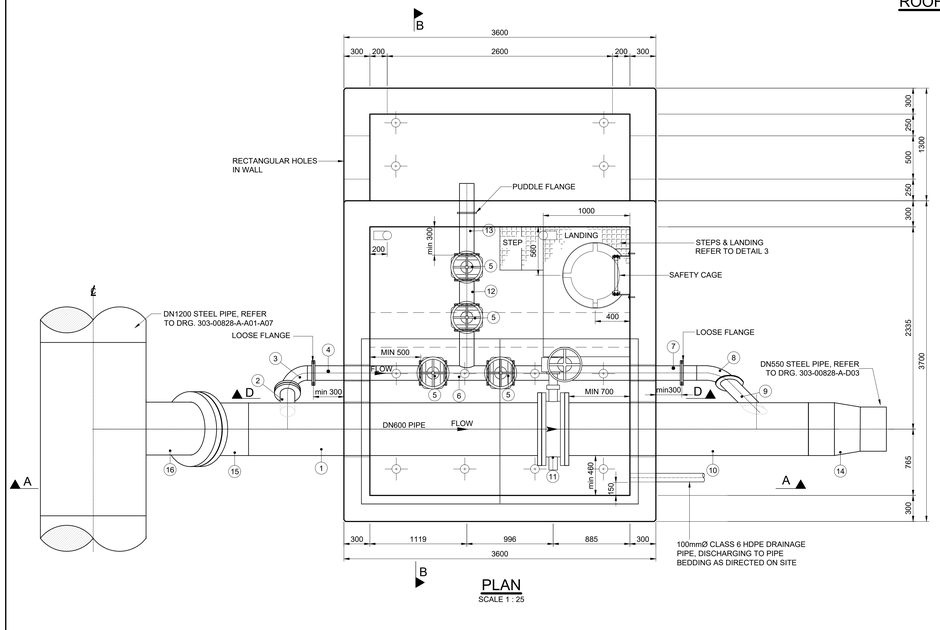
| No. | DESCRIPTION | QTY |
|---|---|---|
| A | DN200 GMS AIR VENT ASSEMBLY. REFER TO STANDARD DETAILS DRG 303-00828-A-E04. | 2 |
| B | DN200 x 4700mm LONG PVC STRAIGHT PIECE WITH COUPLING OR HDGMS COLLAR, COMPLETE WITH HDGMS MOUNTING BRACKETS MOUNTED TO ITEM A AND RC WALL AT 1400C/C. REFER TO STANDARD DETAILS DRG. 303-00828-A-E04 | 1 |
| C | "PULLTRUDED GRP" LADDER - 4500mm LONG, COMPLETE WITH MOUNTING BRACKETS. REFER TO STANDARD DETAILS DRG. 303-00828-A-E04 | 1 |
| D | "PULLTRUDED GRP" SAFETY CAGE - 2200mm LONG, COMPLETE WITH MOUNTING BRACKETS. REFER TO STANDARD DETAILS DRG.303-00828-A-E04 | 1 |
| E | GRP LANDING AND SUPPORTS COMPLETE WITH HOLDING DOWN BOLTS, AS PER DETAIL 3. | 1 |
| F | DN100, CLASS 6, HDPE PIPE - 3000mm LONG, WITH U24 GEOTEXTILE FABRIC, SUBJECT TO THE ENGINEERS APPROVAL. | 1 |
| G | TAPERED HARDWOOD PLUG & SEALANT FOR 100mmØ LIFTING HOLES AS PER LIFTING HOLE DETAIL, REFER TO STANDARD DETAIL DRG. 303-00828-A-E04 | 12 |
| H | ROUND MANHOLE COVER AHND FRAME (SANS 558- TYPE 1A) | 1 |
| I | PIPE/WALL SEALING FOR DN600 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04 | 2 |
| J | PIPE/WALL SEALING FOR DN150 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04 | 2 |
| K | PIPE/WALL SEALING FOR DN150 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04 | 1 |
| L | PIPE/WALL SEALING FOR DN100 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04 | 1 |



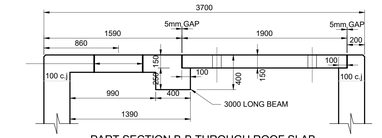

ELEVATION

PLAN

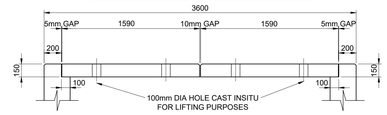
## DETAIL 1
## ROOF SLAB DETAIL (WET CHAMBER)
SCALE 1 : 25



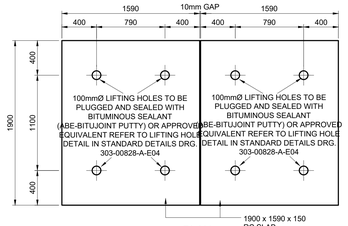

PLAN
SCALE 1 : 25




PART SECTION B-B THROUGH ROOF SLAB

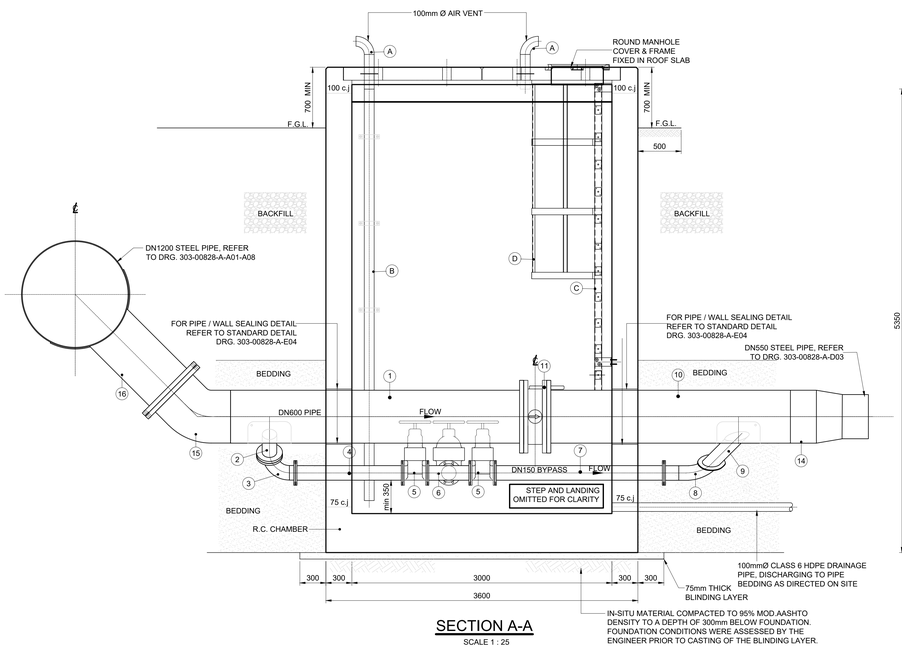



PART SECTION D-D THROUGH ROOF SLAB

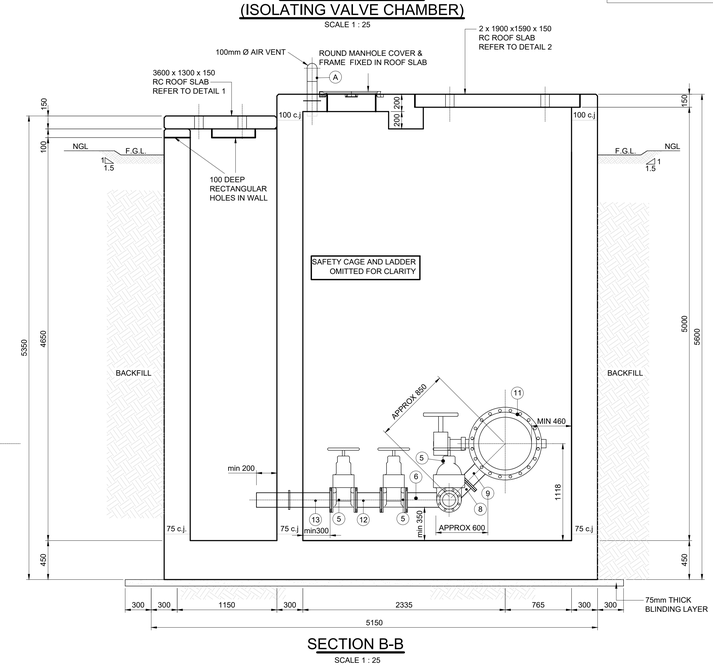



PLAN

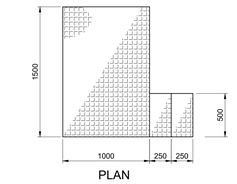
## DETAIL 2
## ROOF SLAB DETAIL
## (ISOLATING VALVE CHAMBER)
SCALE 1 : 25



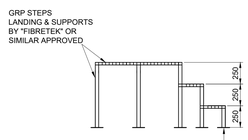

SECTION A-A
SCALE 1 : 25




SECTION B-B
SCALE 1 : 25




PLAN




ELEVATION

## DETAIL 3
## STEPS & LANDING DETAIL
SCALE 1 : 25

### NOTES:
ALL HANDRAILS, GRP LANDINGS, STEPS, VERTICAL SUPPORTS AND BRACING INCLUDING FIXING DETAILS ARE TO BE STRICTLY IN ACCORDANCE WITH THE MANUFACTURING DESIGN AND INSTALLATION SPECIFICATIONS.

### GENERAL NOTES

**PIPEWORK**

1. ALL PIPEWORK TO BE MILD STEEL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS UNLESS OTHERWISE STATED.
2. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF ALL PIPEWORK AND ADVISE THE ENGINEER OF ANY DISCREPANCIES PRIOR TO FABRICATION.
3. ALL PIPES GREATER THAN AND INCLUDING DN100, FITTED TO EQUIPMENT OR FITTINGS, OR WHERE SPECIFICALLY INDICATED SHALL BE FLANGED TO SANS 1123 (TABLE 3) OR BS EN 1092 : 1 WHERE SANS 1123 (TABLE 3) DOES NOT APPLY OR AS SPECIFIED ON THE DRAWINGS. SHOULD THE RESPECTIVE FLANGE DRILLING NOT BE COVERED IN THE ABOVE SPECIFICATIONS THE RESIDENT ENGINEER SHALL BE CONSULTED FOR THE APPROPRIATE SPECIFICATION, BEFORE PROCURING ANY VALVES OR FLANGES.
4. SURFACE PREPARATION FOR APPLICATION OF CORROSION PROTECTION MATERIALS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. DAMAGED COATINGS AND LININGS SHALL BE REPAIRED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
6. ALL PIPEWORK AND SPECIALS TO BE COATED AND LINED AS PER THE PROJECT SPECIFICATIONS.
7. ALL JOINTS SHALL BE COATED, PROTECTED AND WRAPPED AS PER THE PROJECT SPECIFICATIONS.
8. THE PRESSURE RATINGS OF ALL PIPEWORK, FLANGES AND VALVES, SHALL BE AS INDICATED IN THE SCHEDULES OF FITTINGS.
9. ALL MILD STEEL PIPEWORK, COLLARS, WRAPPERS AND CROTCH PLATES TO BE MANUFACTURED FROM STEEL PIPE OF THE SAME GRADE AS THE MAIN PIPE.
10. ALL BENDS TO BE FABRICATED AND DIMENSIONED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
11. FOR COLLAR PLATES, PRE-DRILL 2 x 5mmØ HOLE. UPON COMPLETION OF FILLET WELDING WELD HOLES CLOSED.

**VALVES AND FITTINGS**

12. AIR VALVES:
    12.1. DN25 TO DN50 TO BE SCREW TYPE.
    12.2. DN80 TO DN200 TO BE FLANGED TYPE.
13. BUTTERFLY VALVES.
    13.1. FLANGED U-SECTION TYPE - SIZES UP TO DN1200, HAND WHEEL OPERATED, CLOCKWISE CLOSING (SUPPLIED WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS AND GASKETS). UNLESS OTHERWISE SPECIFIED.
14. RSV & WEDGE GATE VALVES:
    14.1. DN100 TO DN300, HAND WHEEL OPERATED, CLOCKWISE CLOSING (SUPPLIED WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS AND GASKETS). UNLESS OTHERWISE SPECIFIED.

**CONCRETE**

15. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
16. ALL EXPOSED EDGES TO BE CHAMFERED 25x25.
17. MINIMUM COVER TO ALL REINFORCING SHALL BE 50mm.
18. CONSTRUCTION JOINTS TO BE WELL CLEANED & SCABBLED TO EXPOSE FRESH AGGREGATE AND THOROUGHLY WETTED BEFORE THE NEXT LIFT IS POURED.
19. FLOOR SCREED LAID TO FALL WITH THICKNESS VARYING FROM 100 TO 50mm.
20. CONCRETE GRADE
    20.1. BLINDING : C12/15-20 UNLESS OTHERWISE STATED
    20.2. CONCRETE : C25/20-20 UNLESS OTHERWISE STATED
    20.3. SCREED : 1:3 (CEMENT/SAND)
21. FINISHES
    21.1. EXTERNAL WALLS UNEXPOSED : F1 FINISH
    21.2. EXTERNAL WALLS EXPOSED : F1 FINISH
    21.3. INTERNAL WALLS : F2 FINISH
    21.4. FLOOR : U4 FINISH
22. WHERE APPLICABLE, AIR VENTS, LIFTING HOLES, LIFTING HOOKS, STEP IRONS AND MANHOLE COVER & FRAME ARE TO BE CAST IN CONCRETE.
23. BOTTOM OF AIR INLET TO BE MINIMUM OF 200mm ABOVE NGL.
24. ACCESS LADDERS TO HAVE CAGE FROM 2.3m ABOVE CHAMBER FLOOR.
25. PRESSURE RATING IN ACCORDANCE TO SCHEDULES

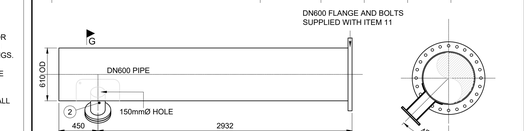
**ABBREVIATIONS :**

| | | | | | |
|---|---|---|---|---|---|
| ID | - | INSIDE DIAMETER | DI | - | DUCTILE IRON |
| CI | - | CAST IRON | F/F | - | FACE TO FACE DIMENSION |
| DN | - | DIAMETER NOMINAL | C/F | - | CENTER TO FACE DIMENSION |
| OD | - | OUTSIDE DIAMETER | FOE | - | FLANGED ONE END |
| MS | - | MILD STEEL | BEF | - | BOTH ENDS FLANGED |
| SS | - | STAINLESS STEEL | FAR | - | FLANGED ALL ROUND |
| FRL | - | FINAL ROAD LEVEL | LRB | - | LONG RADIUS BEND |
| SFE | - | SOLVENT FREE EPOXY | SRB | - | SHORT RADIUS BEND |
| CML | - | CEMENT MORTAR LINED | NGL | - | NATURAL GROUND LEVEL |
| FBE | - | FUSION BONDED EPOXY | HDGMS | - | HOT DIPPED GALVANIZED MILD STEEL |
| CMS | - | CEMENT MORTAR SHEATHING | | | |



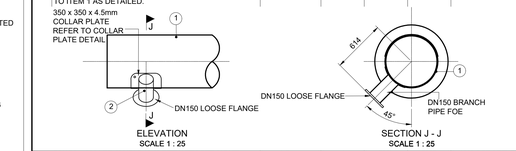

PIPEWORK AND FITTINGS SCHEDULE 1.1 (PN10)

| ITEM NO. | DESCRIPTION | WALL THICKNESS | NO. OFF | LINING | COATING | GRADE OF STEEL |
|---|---|---|---|---|---|---|
| 1 | SPECIAL: DN600 WITH DN150 HOLE AS DETAILED. | DN600: 6mm | 1 | CML | CMS | X42 / GRADE C |
| 2 | DN150 BRANCH PIPE & COLLAR PLATE, FOE, WELDED TO ITEM 1 AS DETAILED. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 3 | DN150 x 90° LRB (ANSI B16.9) BEF WITH STRAIGHT PIPES WELDED ON BOTH ENDS SUCH THAT C/F EQUALS 300mm. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 4 | DN150 x 1240mm F/F STRAIGHT PIPE, BEF, ONE FLANGE SUPPLIED WITH ITEM 5. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 5 | DN150 WEDGE GATE VALVE, HAND WHEEL OPERATED, COMPLETE WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS & GASKETS. REFER TO GENERAL NOTES - VALVES & FITTINGS | - | 4 | - | - | - |
| 6 | DN150 EQUAL TEE, FAR AS DETAILED: | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 7 | DN150 x 1950mm F/F STRAIGHT PIPE, BEF, ONE FLANGE SUPPLIED WITH ITEM 5. FINAL LENGTH TO BE DETERMINED ONSITE. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 8 | DN150 x 45° LRB (ANSI B16.9) BEF WITH STRAIGHT PIPES WELDED ON BOTH ENDS SUCH THAT C/F EQUALS 250mm. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 9 | DN150 BRANCH PIPE & COLLAR PLATE, FOE WELDED TO ITEM 10 AS DETAILED. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 10 | SPECIAL: DN600 WITH DN150 HOLE AS DETAILED. | DN600: 6mm | 1 | CML | CMS | X42 / GRADE C |
| 11 | DN600 BUTTERFLY VALVE & GEARBOX, HAND WHEEL OPERATED, COMPLETE WITH NUTS, BOLTS, GASKETS, WASHERS & MATCHING FLANGES. REFER TO GENERAL NOTES - VALVES & FITTINGS. | - | 1 | - | - | - |
| 12 | DN150 x 300mm F/F STRAIGHT PIECE, BEF, FLANGES SUPPLIED WITH ITEM 5. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 13 | DN150 x 820mm F/F SPOOL PIECE, F.O.E, WITH DN150 PUDDLE FLANGE, 480mm FROM FLANGED END, FLANGE SUPPLIED WITH ITEM 5. | 4.5mm | 1 | CML | CMS | X42 / GRADE C |
| 14 | DN600 x DN550 CONCENTRIC REDUCER. | 6mm | 1 | CML | CMS | X42 / GRADE C |
| 15 | DN600 x 90° LRB (ANSI B16.9) FOE. | 6mm | 1 | CML | CMS | X42 / GRADE C |
| 16 | SPECIAL: DN1200 x DN600 TEE AND COLLAR PLATE AS DETAILED: | DN600: 4.5mm | 1 | CML | CMS | X42 / GRADE C |



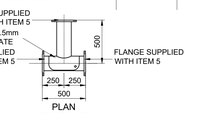

ELEVATION
SCALE 1 : 25

SECTION G - G
SCALE 1 : 25

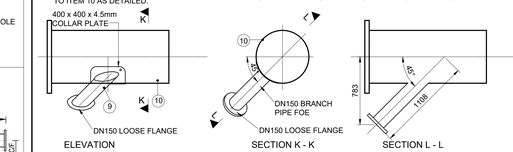



ELEVATION
SCALE 1 : 25

SECTION J - J
SCALE 1 : 25



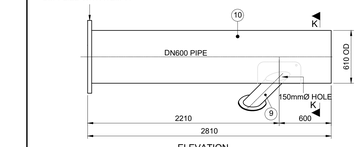

PLAN
SCALE 1 : 25



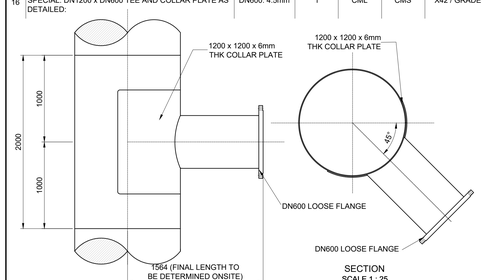

ELEVATION
SCALE 1 : 25

SECTION K - K
SCALE 1 : 25

SECTION L - L
SCALE 1 : 25




ELEVATION
SCALE 1 : 25




PLAN
SCALE 1 : 25

SECTION
SCALE 1 : 25

ORIGINAL SCALE: 1 : 100

| No. | DATE | REVISION | CONSULT. ENG. |
|---|---|---|---|
| V1 | 23/11/2023 | ORIGINAL VERSION | |

CONSTRUCTION RECORD (AS-BUILT)
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Date :


**HEAD OFFICE**
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0184

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SANRAL
SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg No. 1998/009054/30
BUILDING SOUTH AFRICA THROUGH BETTER ROADS

**WESTERN REGION**
1 Havenga Street
Oakdale
Bellville
7530

Private Bag X19
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7535

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for the SA NATIONAL ROADS AGENCY SOC LTD.
Date:

**PROJECT DESCRIPTION**
THE CAPACITY IMPROVEMENT OF THE NATIONAL ROUTE 1 SECTION 1 FROM OLD OAK INTERCHANGE (KM 18.90) TO KOELENOFF INTERCHANGE (KM 33.00)

**DRAWING DESCRIPTION**
N1 - WEMMERSHOEK PIPELINE RELOCATION
SECTION A - KOELENHOF TO KRAAIFONTEIN
DN600 ISOLATING VALVE AT OFFTAKE TO BLOEKOMBOS PS

SCALE : AS SHOWN SHEET 1 OF 1

| | |
|---|---|
| PROJECT NUMBER | N.001-010-2021/1 |
| DRAWING LOCATION DATA | START / END |
| ROUTE | N01 / N01 |
| SECTION | 01 / 01 |
| DRAWING km DISTANCE | 18.90 / 33.00 |
| DRAWING TYPE | ROADS-UTILITIES |
| BRIDGE/STRUCTURE No. | - |
| CONSULTANT DRAWING No. | 312-0828-A-B03 / VER |
| SANRAL DOCUMENT # | - / V1 |