

| CHAINAGE (m) | EXISTING GROUND LEVEL (m) | INVERT LEVELS (m) | H.G.L (m)<br>DATUM (m) |
|--------------|---------------------------|-------------------|------------------------|
| 1686.35      | 1611.09                   | 1609.59           | 1686.35                |
| 1688.86      | 1610.99                   | 1609.49           | 1688.86                |
| 1684.24      | 1610.99                   | 1609.49           | 1684.24                |
| 1682.75      | 1610.90                   | 1609.40           | 1682.75                |
| 1681.01      | 1610.94                   | 1609.44           | 1681.01                |
| 1679.39      | 1610.93                   | 1609.43           | 1679.39                |
| 1678.27      | 1610.86                   | 1609.36           | 1678.27                |
| 1676.15      | 1610.71                   | 1609.21           | 1676.15                |
| 1674.53      | 1610.60                   | 1609.10           | 1674.53                |
| 1672.91      | 1610.51                   | 1609.01           | 1672.91                |
| 1671.29      | 1610.38                   | 1608.88           | 1671.29                |
| 1669.67      | 1610.11                   | 1608.61           | 1669.67                |
| 1688.05      | 1609.72                   | 1608.22           | 1688.05                |
| 1688.43      | 1609.49                   | 1607.99           | 1688.43                |
| 1664.81      | 1609.07                   | 1607.57           | 1664.81                |
| 1664.11      | 1608.65                   | 1607.15           | 1664.11                |
| 1663.19      | 1608.65                   | 1607.15           | 1663.19                |
| 1661.57      | 1608.24                   | 1606.74           | 1661.57                |
| 1659.95      | 1607.93                   | 1606.43           | 1659.95                |
| 1658.33      | 1607.60                   | 1606.10           | 1658.33                |
| 1656.71      | 1607.24                   | 1605.74           | 1656.71                |
| 1655.09      | 1606.66                   | 1605.16           | 1655.09                |
| 1654.12      | 1605.91                   | 1604.41           | 1654.12                |
| 1653.47      | 1605.91                   | 1604.41           | 1653.47                |
| 1651.85      | 1605.42                   | 1603.92           | 1651.85                |
| 1650.23      | 1603.74                   | 1602.24           | 1650.23                |
| 1648.61      | 1602.52                   | 1601.02           | 1648.61                |
| 1646.98      | 1601.34                   | 1599.84           | 1646.98                |
| 1645.37      | 1600.46                   | 1598.96           | 1645.37                |
| 1643.75      | 1599.40                   | 1597.90           | 1643.75                |
| 1642.13      | 1598.36                   | 1596.86           | 1642.13                |
| 1640.51      | 1597.74                   | 1596.24           | 1640.51                |
| 1639.91      | 1597.52                   | 1596.02           | 1639.91                |
| 1638.89      | 1597.03                   | 1595.53           | 1638.89                |
| 1637.27      | 1596.23                   | 1594.73           | 1637.27                |
| 1635.65      | 1595.33                   | 1593.83           | 1635.65                |
| 1634.03      | 1594.78                   | 1593.28           | 1634.03                |
| 1632.42      | 1594.42                   | 1592.92           | 1632.42                |
| 1630.84      | 1594.00                   | 1592.60           | 1630.84                |
| 1629.18      | 1593.38                   | 1591.88           | 1629.18                |
| 1627.56      | 1592.46                   | 1590.96           | 1627.56                |
| 1626.80      | 1591.51                   | 1590.01           | 1626.80                |
| 1625.94      | 1591.51                   | 1590.01           | 1625.94                |
| 1624.32      | 1590.58                   | 1589.08           | 1624.32                |
| 1622.70      | 1589.81                   | 1588.31           | 1622.70                |
| 1621.08      | 1589.53                   | 1588.03           | 1621.08                |
| 1619.46      | 1589.73                   | 1588.23           | 1619.46                |
| 1618.50      | 1588.95                   | 1587.45           | 1618.50                |
| 1617.84      | 1588.95                   | 1587.45           | 1617.84                |
| 1616.22      | 1586.68                   | 1585.18           | 1616.22                |
| 1615.62      | 1585.48                   | 1583.98           | 1615.62                |
| 1614.60      | 1585.12                   | 1583.62           | 1614.60                |
| 1613.62      | 1584.90                   | 1583.40           | 1613.62                |
| 1612.98      | 1584.90                   | 1583.40           | 1612.98                |
| 1612.01      |                           |                   | 1612.01                |

|                       |                         |                  |                     |
|-----------------------|-------------------------|------------------|---------------------|
| TYPE OF PIPE AND SIZE | PN 10 315MM HDPE PIPE   | TEE OFF TO MBIRI | PN 315 MM HDPE PIPE |
| REMARKS.              |                         |                  |                     |
| PIPE FLOW DATA        | 0.0313M <sup>3</sup> /S |                  |                     |


- NOTES**
- ALL LEVELS ARE IN METERS ABOVE SEA LEVEL.
  - COORDINATES ARE BASED ON UTM.
  - LOCATION OF AIR VALVES, WASHOUTS, BENDS AND OTHER FITTINGS AS SHOWN UNLESS OTHERWISE DIRECTED BY THE ENGINEER ON SITE.
  - GROUND AND INVERT LEVEL SHOWN ARE AS SHOWN ON DRAWING UNLESS OTHERWISE INDICATED ON SITE BY THE ENGINEER.
  - PIPES ARE TO BE LAID TO EVEN GRADIENTS WITH A MINIMUM COVER OF 1.0M. WHERE COVER IS LESS THAN THIS, PIPE TO BE SURROUNDED WITH CONCRETE.
  - ALL BENDS ARE HORIZONTAL UNLESS OTHERWISE STATED.
  - IN WATER LOGGED AREAS, PIPES TO BE BEDDED WITH SINGLE SIZED OR GRADED AGGREGATES AS PER CLAUSE 430.1 AND 216 OF TECHNICAL SPECIFICATIONS AND/OR ANCHOR BLOCKS AS MAY BE DIRECTED ON SITE BY THE ENGINEER.

- LEGEND:**
- PROPOSED PIPELINE
  - EXISTING GROUND PROFILE
  - PIPE INVERT PROFILE
  - EXISTING ROAD
  - ◇ — AIR VALVE
  - DAV — DOUBLE AIR VALVE
  - ▽ — WASHOUT
  - WO1 — WASHOUT TYPE 1
  - WO2 — WASHOUT TYPE 2
  - DN — NOMINAL DIAMETER
  - PN — NOMINAL PRESSURE
  - VB — VERTICAL BEND
  - HB — HORIZONTAL BEND
  - ▨ — EXISTING STRUCTURE
  - ER — EARTH ROAD
  - GR — GRAVEL ROAD
  - CUT

**FOR CONSTRUCTION**

| REV | REVISIONS | SIGN | DATE | APPROVED |
|-----|-----------|------|------|----------|
|     | BY        |      |      |          |
|     | CHECKED   |      |      |          |
|     | BY        |      |      |          |
|     | CHECKED   |      |      |          |
|     | BY        |      |      |          |
|     | CHECKED   |      |      |          |
| GO  | BY        |      |      |          |
|     | CHECKED   |      |      |          |

**CLIENT**




TANA WATER WORKS  
DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

**PROJECT**

NGARIAMA NJUKIINI WATER PROJECT

Civil/Structural Engineers



TANA WATER WORKS  
DEVELOPMENT AGENCY  
P. O. BOX 1292-10100  
NYERI

Drawing Title  
NGARIAMA NJUKIINI WATER PROJECT  
TREATED WATER GRAVITY MAIN  
PLAN AND PROFILE (SHEET 4 OF 17)

|                     |                             |
|---------------------|-----------------------------|
| Designed by DWN     | Drawn by EWN                |
| Checked by JMM      | Approved by                 |
| Scale AS SHOWN (A1) | Date MAY, 2022              |
| Job No. 1           | ACAD File:                  |
| C STATUS            | DRAWING No.TWDA/NNWP/TW-004 |
|                     | REV                         |