



REPUBLIC OF KENYA
COAST WATER WORKS DEVELOPMENT
AGENCY

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

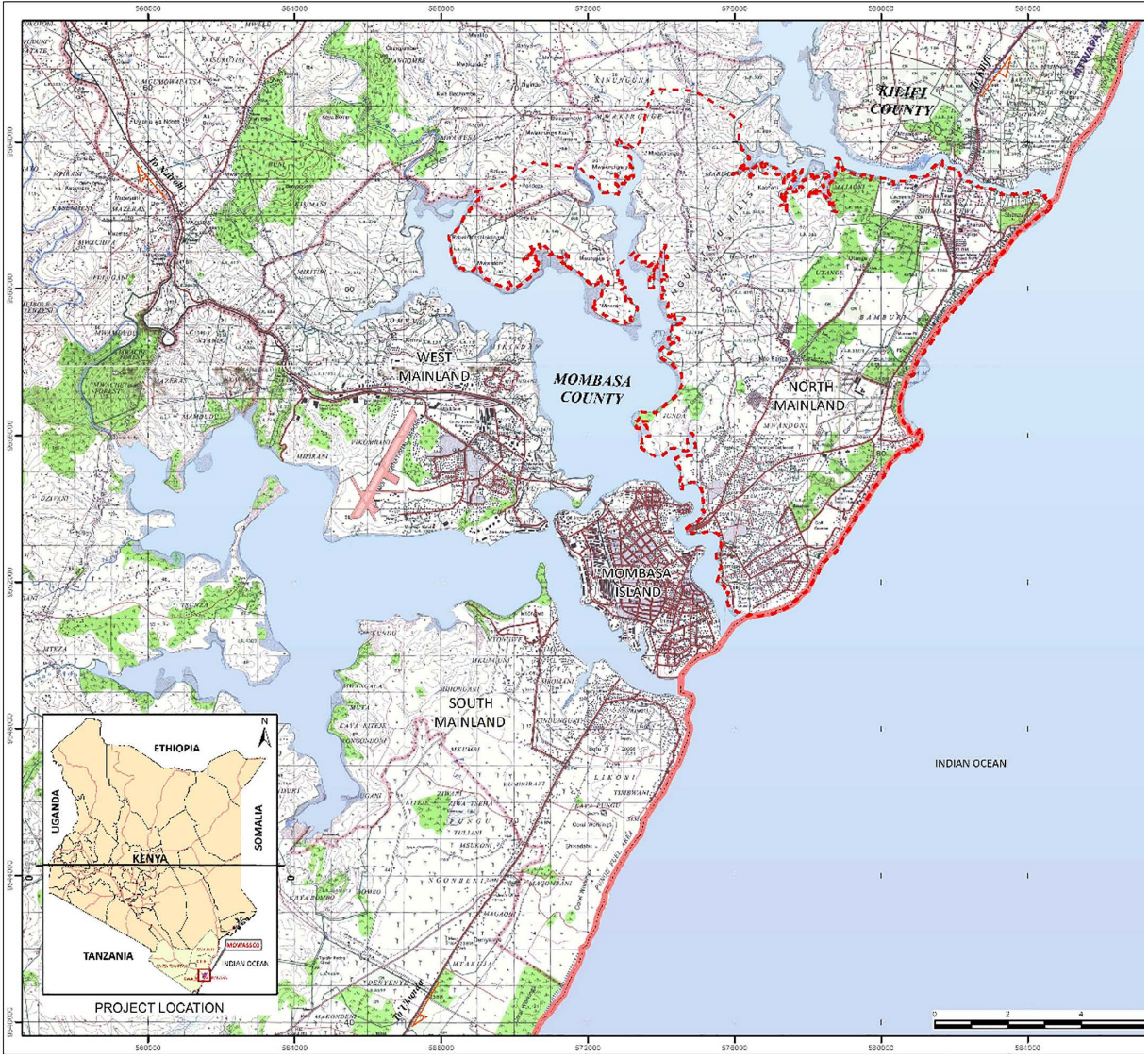
Mombasa Water Distribution Works for North Mainland (Short Term Works) Lot 1A

BID No. KE-CWSB-150896-CW-RFB

BIDDING DOCUMENT
VOLUME III of III
CONTENTS
ENGINEERING DRAWINGS

APRIL, 2020

GENERAL LAYOUT



NO.	REVISION	DATE	BY


**THE CHIEF EXECUTIVE OFFICER
COAST WATER SERVICES BOARD**
 P.O. BOX 95417 - 80100
 MOMBASA, KENYA.

DESIGN CONSULTANT:
MTBP
 CONSULTANTS
 P.O. BOX 49674-09100-GPO,
 NAIROBI, KENYA.
 E-MAIL: mtbp@mtbp.co.ke
 TEL: +254 21 2210900

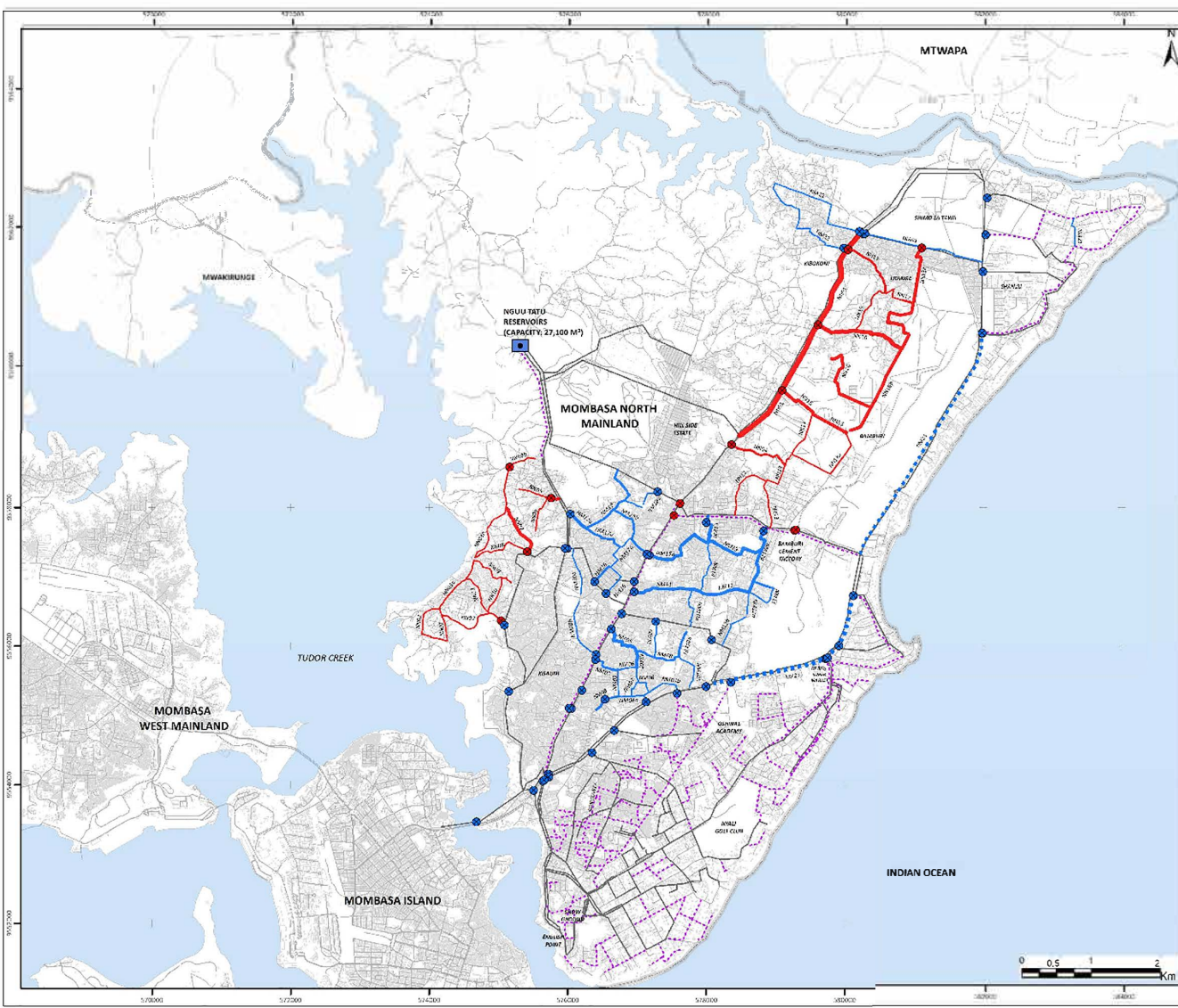
PROJECT NAME
WSDP

**MOMBASA WATER DISTRIBUTION WORKS
FOR NORTH MAINLAND (SHORT TERM) LOT**

DRAWING TITLE
PROJECT LOCATION
PLAN

Designed by: E.M.A.
Checked by: E.M.

MOMBASA NORTH MAINLAND



LEGEND

GENERAL

- NSUUYU RESERVOIR
- EXISTING WATER DISTRIBUTION NETWORK
- PROPOSED WATER DISTRIBUTION NETWORK
- ROADS
- RAILROADS
- WATER MAINS
- PROPOSED WATER MAINS
- PROPOSED WATER MAINS (UNDER CONSTRUCTION)
- PROPOSED PUMP STATIONS
- CONCRETE
- CITY BOUNDARY

PIPING

- 2000
- 2000

DATE	BY	REVISION

THE CHIEF EXECUTIVE OFFICER
COAST WATER WORKS
 PUBLIC UTILITIES AGENCY
 P.O. BOX 55711 - 80100
 NAIROBI, KENYA

DESIGN CONSULTANT
MIBP MANGAT I.D. PATEL (MIDP) LIMITED
 P.O. BOX 48143/005 GPO
 NAIROBI, KENYA
 E-MAIL: mibp@mibp.co.ke
 TEL: +254 20 271000

PROJECT NAME
WSDP

CONTRACT NAME
 MOMBASA WATER DISTRIBUTION WORKS FOR
 NORTH MAINLAND (SUBMITTAL WORKS)

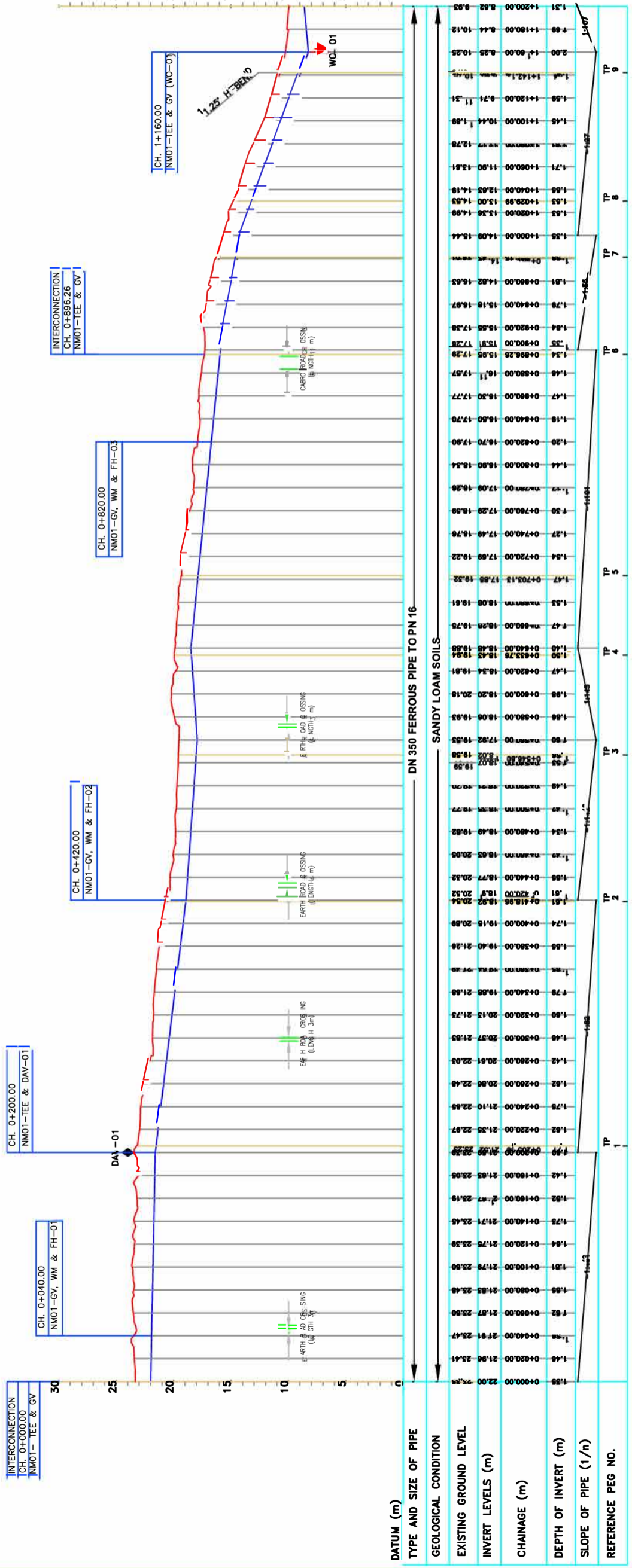
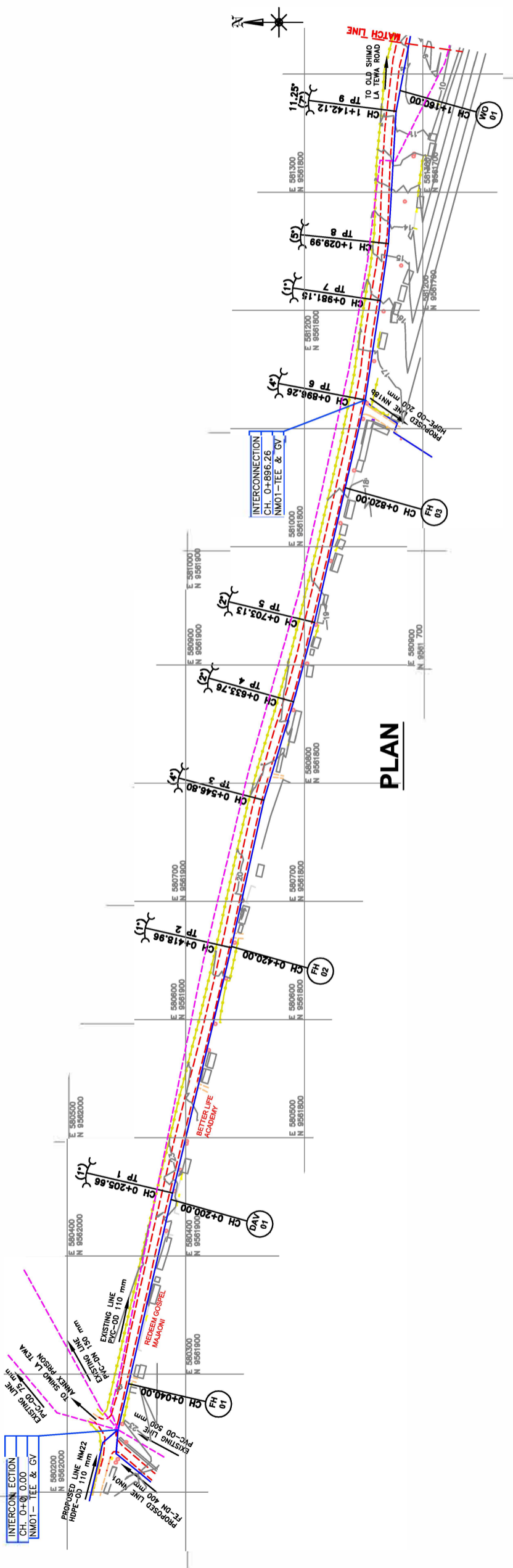
PROJECT TITLE
MOMBASA NORTH MAINLAND
LAYOUT PLAN
EXISTING AND PROPOSED WATER
DISTRIBUTION SYSTEM

DESIGNED BY: O.J.O.	DRAWN BY: F.M.S.
CHECKED BY: E.T.M.	APPROVED BY: R.S.R.
SCALE: 1:5000	DATE: November 2015
CDWG No: M410000011001	REV: 0

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:50
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

	ROAD (W/R/M/C)
	ROAD / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
	CONTOURS, 1m INTERVAL
	ELECTRIC POST
	CULVERT
	GATE
	BUILDINGS
	PROPOSED WATER MAIN
	EXISTING WATER MAIN
	TRANVERSE POINT & No.
	TREES
	TRIAL HOLE
	HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
	GATE VALVE
	FIRE HYDRANT
	WASHOUT VALVE & No.
	DOUBLE ORIFICE AIR VALVE & No.
	WATER METER
	PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
	PERIMETER WALL



LONGITUDINAL SECTION

DRG No.	M410/MC/MNMM01/01	REV.	0
Scale:	H: 1:4000, V: 1:400	Date:	APRIL 2020
Checked by:	E.I.M	Approved by:	R.S.R
Designed by:	T.K.N	Drawn by:	M.M.M

REVISIONS	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYEE:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 80417 - 80100
 MOMBASA, KENYA

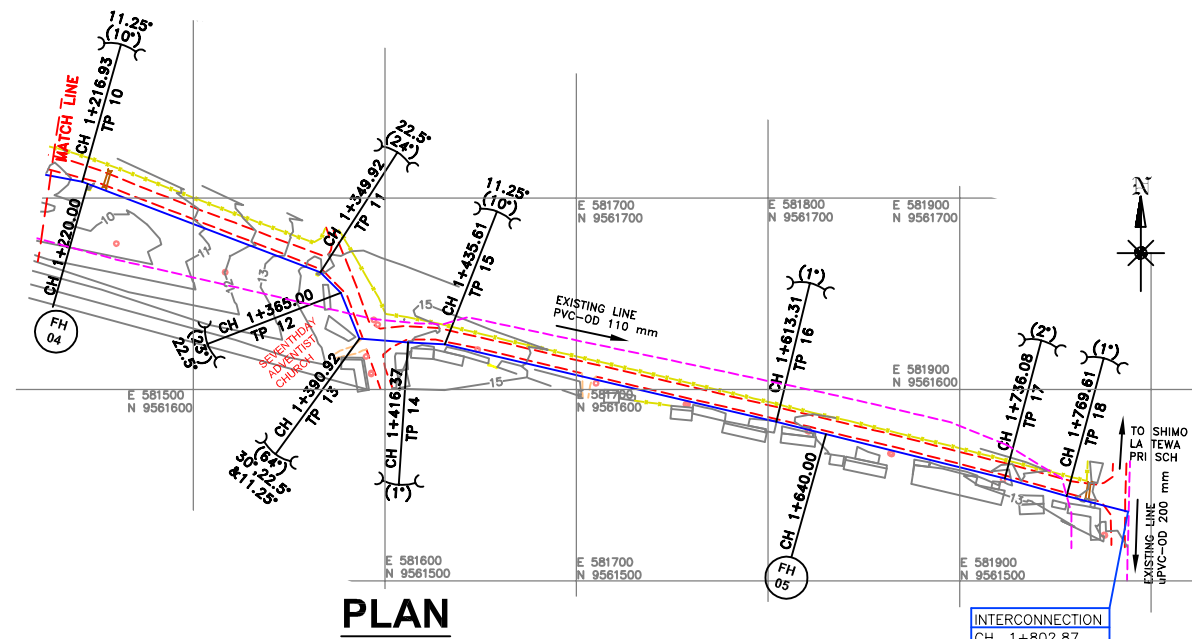
CONSULTANT:
MIBP
 MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48874, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO.: KE-CWSB-150896-CW-RFB

DRAWING TITLE:
 LINE NM01
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 3

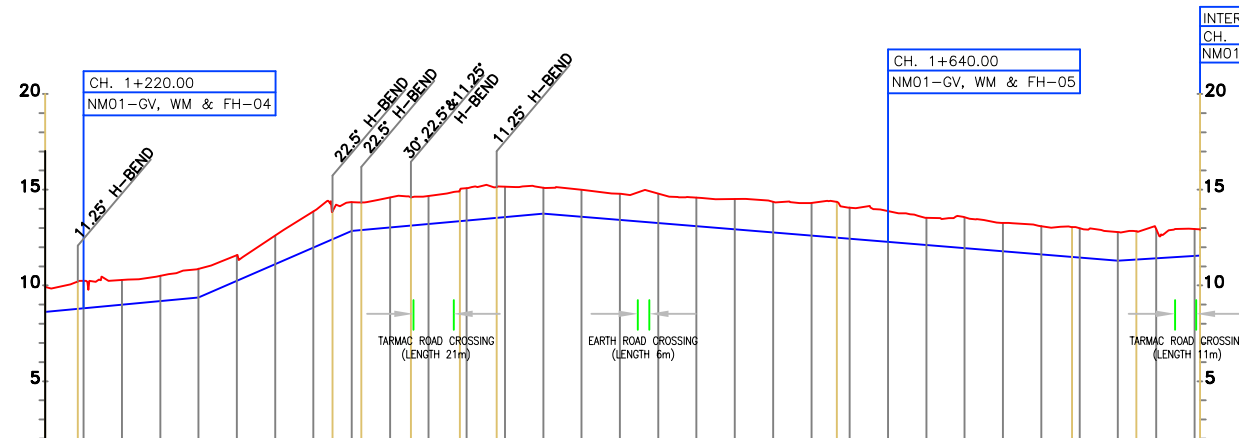


PLAN

INTERCONNECTION
CH. 1+802.87
NMO1-TEE & GV

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



LONGITUDINAL SECTION

DATUM (m)	0																																					
TYPE AND SIZE OF PIPE	DN 350 FERROUS PIPE TO PN 16																																					
GEOLOGICAL CONDITION	SANDY LOAM SOILS																																					
EXISTING GROUND LEVEL	9.95	10.22	10.24	10.28	10.50	10.87	11.59	12.61	13.87	14.35	14.35	14.59	14.80	14.87	14.98	15.14	15.10	14.99	14.79	14.79	14.58	14.51	14.37	14.30	14.38	14.06	13.88	13.54	13.56	13.27	13.10	12.79	12.84	12.96	12.82	12.82		
INVERT LEVELS (m)	8.62	8.78	8.81	8.90	9.18	9.37	10.24	11.11	12.61	13.87	14.35	14.59	14.80	14.87	14.98	15.14	15.10	14.99	14.79	14.79	14.58	14.51	14.37	14.30	14.38	14.06	13.88	13.54	13.56	13.27	13.10	12.79	12.84	12.96	12.82	12.82		
CHAINAGE (m)	1+200.00	1+216.95	1+220.00	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+354.00	1+348.92	1+369.00	1+390.00	1+400.00	1+416.37	1+435.63	1+460.00	1+480.00	1+500.00	1+500.00	1+520.00	1+540.00	1+560.00	1+580.00	1+600.00	1+613.31	1+620.00	1+640.00	1+660.00	1+680.00	1+700.00	1+720.00	1+734.08	1+748.00	1+760.00	1+769.61	1+780.00	1+802.87
DEPTH OF INVERT (m)	1.31	1.43	1.39	1.32	1.50	1.35	1.50	1.50	1.89	1.46	1.50	1.44	1.56	1.46	1.62	1.61	1.35	1.41	1.37	1.54	1.49	1.58	1.60	1.70	1.69	1.63	1.61	1.43	1.61	1.49	1.48	1.56	1.50	1.49	1.54	1.54	1.35	
SLOPE OF PIPE (1/n)	1:107		1:83		1:111		1:122		1:151																													
REFERENCE PEG NO.	TP 10								TP 11	TP 12	TP 13	TP 14	TP 15												TP 16										TP 17	TP 18		

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

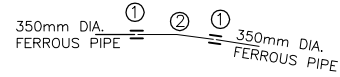
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM01
 PLAN & LONGITUDINAL SECTION
 (CH 1+200.00 - 1+802.87)
 SHEET 2 OF 3**

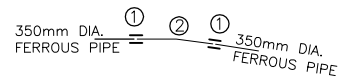
Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM01/02	REV. 0

DETAIL CH. 1+142.12, 1+216.93 & 1+435.61
LINE NM01 - 11.25° H.BEND



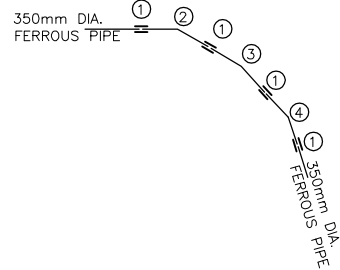
- DESCRIPTION**
3 Nos. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 11.25° BEND

DETAIL CH. 1+349.92 & 1+365.00
LINE NM01 - 22.5° H.BEND



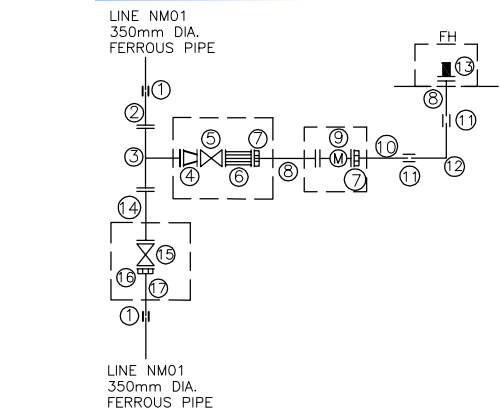
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 22.5° BEND

DETAIL CH. 1+390.92
LINE NM01 - 30°, 22.5° & 11.25° H.BEND



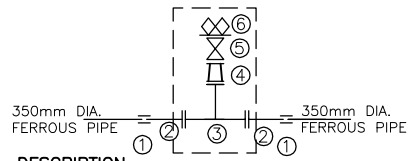
- DESCRIPTION**
1 No. REQUIRED
- ① 4 Nos. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 30° BEND
 - ③ 1 No. 350mm DIA. PLAIN ENDED FERROUS 22.5° BEND
 - ④ 1 No. 350mm DIA. PLAIN ENDED FERROUS 11.25° BEND

DETAIL CH. 0+040.00, 0+420.00, 0+820.00, 1+220.00 & 1+640.00
LINE NM01 - GV, WM & FH - 01, 02, 03, 04 & 05



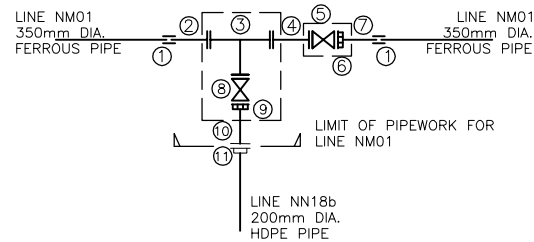
- DESCRIPTION**
5 Nos. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
 - ④ 1 No. 200x80mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑤ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
 - ⑥ 1 No. 80mm DIA. ALL FLANGED STRAINER
 - ⑦ 2 Nos. 80mm DIA. FLANGE ADAPTOR
 - ⑧ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑨ 1 No. 80mm DIA. ALL FLANGED WATER METER
 - ⑩ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑪ 2 Nos. 80mm DIA. V.J. COUPLING
 - ⑫ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
 - ⑬ 1 No. 80mm DIA. FIRE HYDRANT
 - ⑭ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
 - ⑮ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 - ⑯ 1 No. 350mm DIA. FLANGE ADAPTOR
 - ⑰ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG

DETAIL CH. 0+200.00
LINE NM01 -TEE & DAV-01



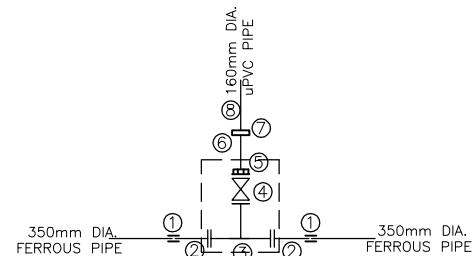
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 2 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 - ③ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
 - ④ 1 No. 200x50mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
 - ⑥ 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE

DETAIL CH. 0+896.26
NM01 - INTERCONNECTION



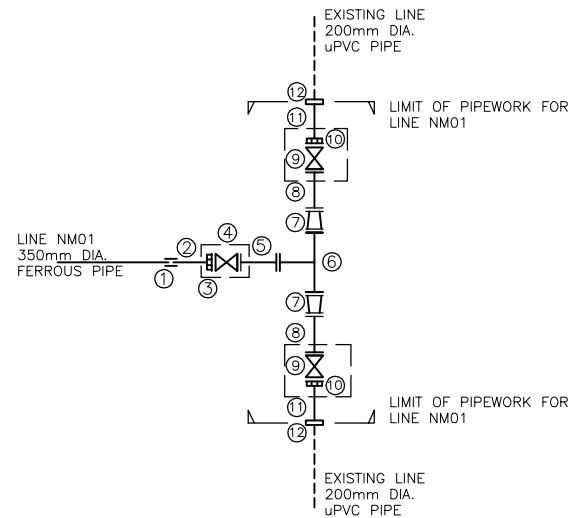
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
 - ④ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑤ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 - ⑥ 1 No. 350mm DIA. FLANGE ADAPTOR
 - ⑦ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑧ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
 - ⑨ 1 No. 200mm DIA. FLANGE ADAPTOR
 - ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑪ 1 No. 200mm DIA. P.E FLANGE ADAPTER(STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 1+160.00
LINE NM01 -TEE & GV (WO) - 01



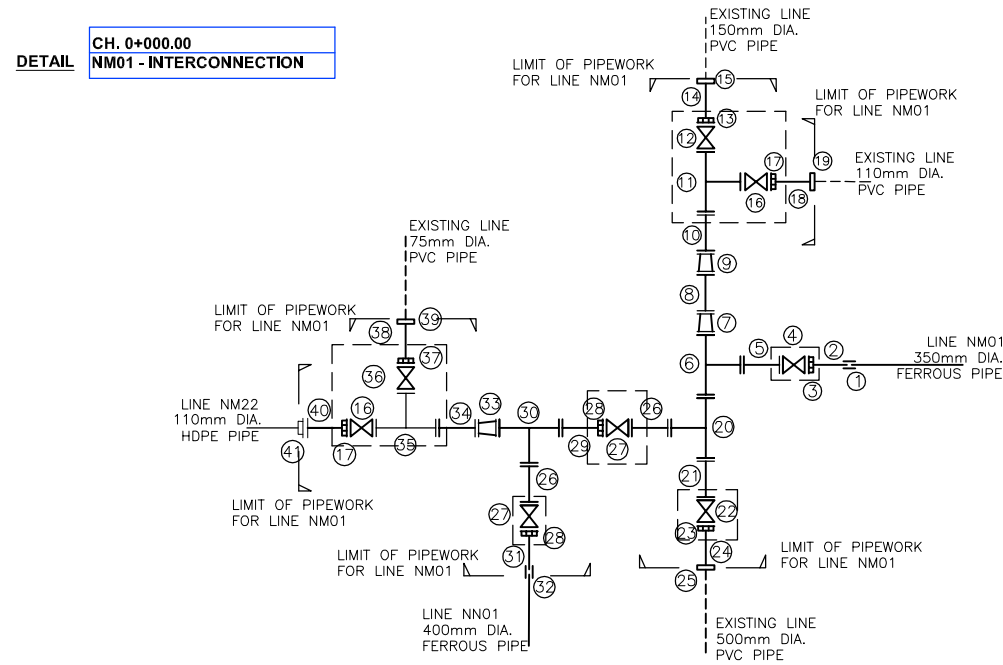
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 350mm DIA. V.J. COUPLING
 - ② 2 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350x150mm DIA. ALL FLANGED FERROUS INVERTED TEE
 - ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 150mm DIA. V.J. FLANGE ADAPTOR
 - ⑥ 1 No. 150mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 - ⑦ 1 No. 150mm DIA. V.J. STEPPED COUPLING
 - ⑧ 1 No. 160mm DIA. uPVC CLASS 'B' PIPE (LENGTH TO SUIT ON SITE)

DETAIL CH. 1+802.87
NM01 - INTERCONNECTION



- DESCRIPTION**
1 No. REQUIRED
- ① 1 No. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350mm DIA. FLANGE ADAPTOR
 - ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑥ 1 No. 350x350mm DIA. ALL FLANGED FERROUS TEE
 - ⑦ 2 Nos. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑧ 2 Nos. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑨ 2 Nos. 200mm DIA. ALL FLANGED GATE VALVE
 - ⑩ 2 Nos. 200mm DIA. FLANGE ADAPTOR
 - ⑪ 2 Nos. 200mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑫ 2 Nos. 200mm DIA. V.J. STEPPED COUPLING

DETAIL CH. 0+000.00
NM01 - INTERCONNECTION



- DESCRIPTION**
1 No. REQUIRED
- ① 1 No. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350mm DIA. FLANGE ADAPTOR
 - ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑥ 1 No. 500x350mm DIA. ALL FLANGED FERROUS TEE
 - ⑦ 1 No. 500x250mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑧ 1 No. 250mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑨ 1 No. 250x150mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑩ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ⑪ 1 No. 150x100mm DIA. ALL FLANGED FERROUS TEE
 - ⑫ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑬ 1 No. 150mm DIA. FLANGE ADAPTOR
 - ⑭ 1 No. 150mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑮ 1 No. 150mm DIA. V.J. STEPPED COUPLING
 - ⑯ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
 - ⑰ 2 Nos. 100mm DIA. FLANGE ADAPTOR
 - ⑱ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑲ 1 No. 100mm DIA. V.J. STEPPED COUPLING
 - ⑳ 1 No. 500x400mm DIA. ALL FLANGED FERROUS TEE
 - ㉑ 1 No. 500mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ㉒ 1 No. 500mm DIA. ALL FLANGED GATE VALVE

- ㉓ 1 No. 500mm DIA. FLANGE ADAPTOR
- ㉔ 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ㉕ 1 No. 500mm DIA. V.J. STEPPED COUPLING
- ㉖ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ㉗ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ㉘ 2 Nos. 400mm DIA. FLANGE ADAPTOR
- ㉙ 1 No. 400mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ㉚ 1 No. 400x400mm DIA. ALL FLANGED FERROUS TEE
- ㉛ 1 No. 400mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ㉜ 1 No. 400mm DIA. V.J. COUPLING
- ㉝ 1 No. 400x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ㉞ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ㉟ 1 No. 100x65mm DIA. ALL FLANGED FERROUS TEE
- ㊱ 1 No. 65mm DIA. ALL FLANGED GATE VALVE
- ㊲ 1 No. 65mm DIA. FLANGE ADAPTOR
- ㊳ 1 No. 65mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ㊴ 1 No. 65mm DIA. V.J. STEPPED COUPLING
- ㊵ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ㊶ 1 No. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT


LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
DAV-01	DOUBLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER
()	PROPOSED VALVE BOX

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

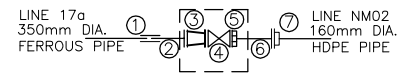
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM01 FITTING DETAILS SHEET 3 OF 3

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM01/03	REV. 0

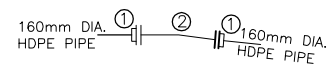
CH. 0+000.00
LINE NM02 - REDUCER & GV



DESCRIPTION

- 1 No. REQUIRED**
- ① 1 No. 350mm DIA. V.J. COUPLING
 - ② 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 1 No. 350x150mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
 - ⑥ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑦ 1 No. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING

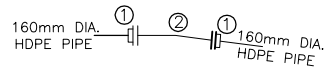
CH. 0+012.13, 0+043.42, 0+066.19, 0+093.97, 0+122.59 & 0+146.49
LINE NM02 - 11.25° H.BEND



DESCRIPTION

- 6 Nos. REQUIRED**
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

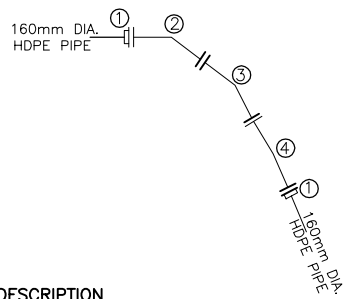
CH. 0+025.28 & 0+167.92
LINE NM02 - 22.5° H.BEND



DESCRIPTION

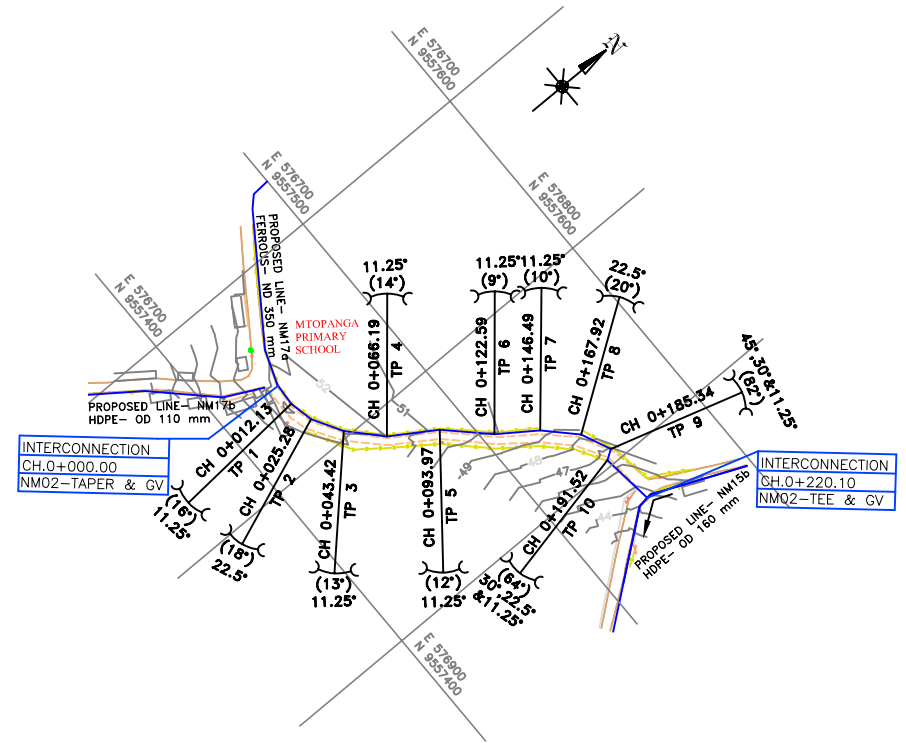
- 2 Nos. REQUIRED**
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+185.34
LINE NM08 - 45°, 30° & 11.25° H.BEND

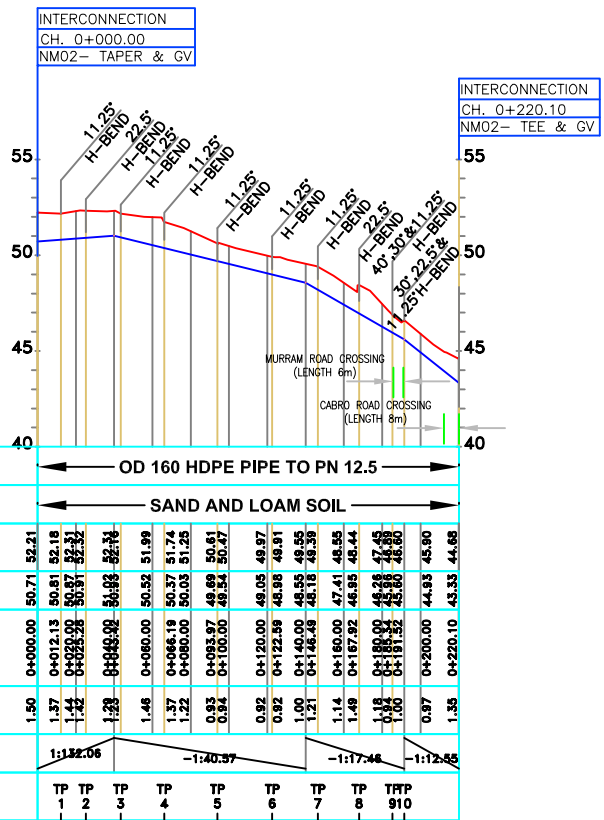


DESCRIPTION

- 1 No. REQUIRED**
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND
 - ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND
 - ④ 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

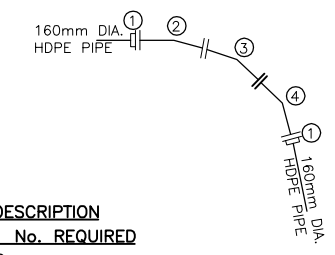


PLAN



LONGITUDINAL SECTION

CH. 0+191.52
LINE NM02 - 30°, 22.5° & 11.25° BEND



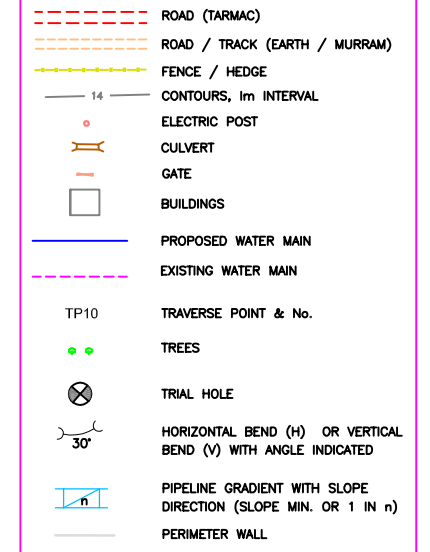
DESCRIPTION

- 1 No. REQUIRED**
- ① 2 Nos. 160mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. 30° ALL FLANGED FERROUS BEND
 - ③ 1 No. 150mm DIA. 22.5° ALL FLANGED FERROUS BEND
 - ④ 1 No. 150mm DIA. 11.25° ALL FLANGED FERROUS BEND

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+220.10 SEE DRG. NO. M410/M0/NM/NM15b/02 AT CHAINAGE 0+300.01

LEGEND:



REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MANGAT I.B PATEL (MIBP) LIMITED
 CONSULTING ENGINEERS
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

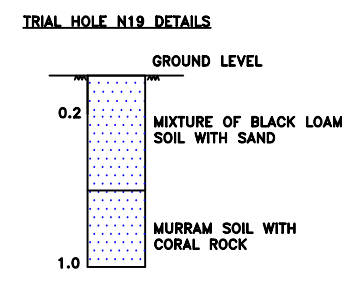
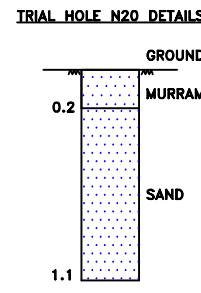
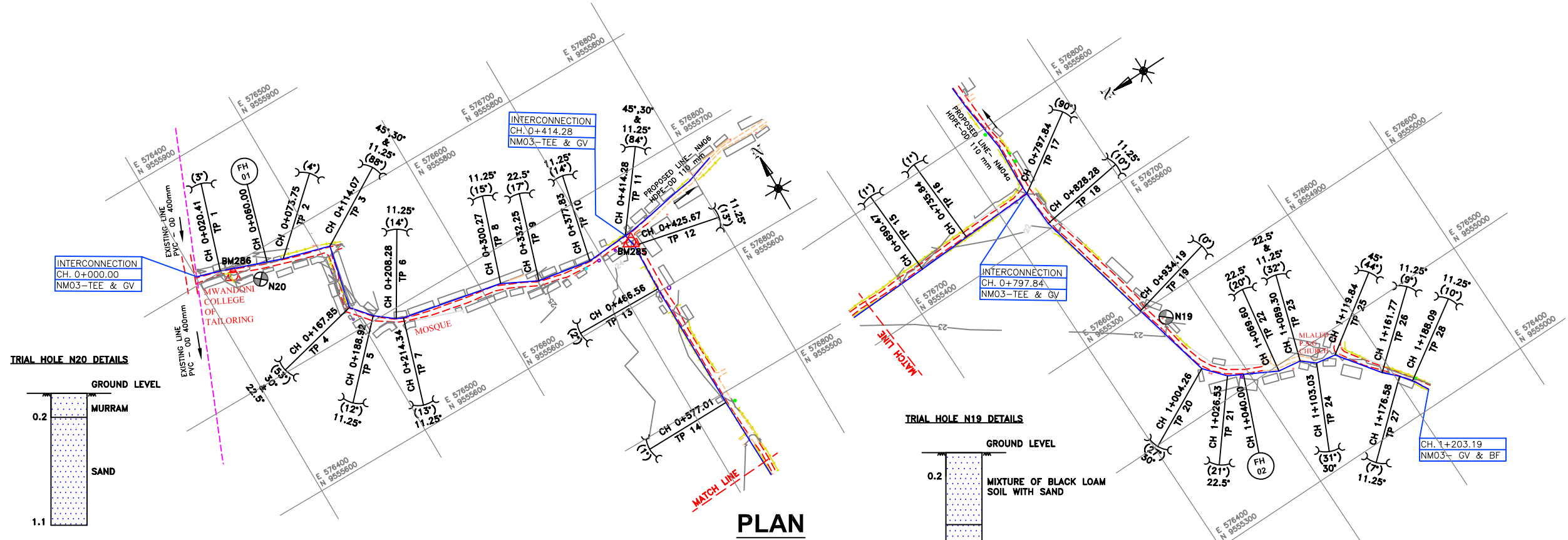
DRAWING TITLE:
LINE NM02
PLAN & LONGITUDINAL SECTION
(CH 0+000.00 - 0+220.10)
SHEET 1 OF 1

Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM02/01** REV. 0



PLAN

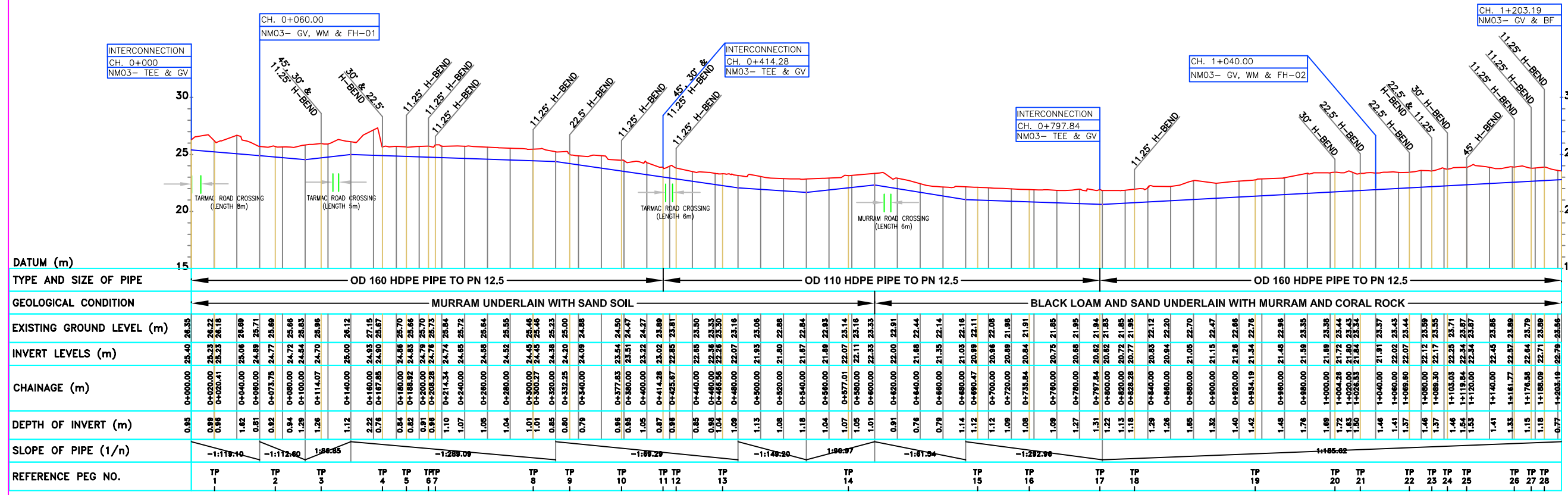
NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- THE SURVEY WAS BASED ON THE DATUM BM285 AND BM286 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM285	576.727.14	9.555.647.33	24.05
BM286	576.427.50	9.555.791.79	25.97

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GV GATE VALVE
- FH FIRE HYDRANT
- PIPELINE GRADE WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- BENCHMARK (CONCRETE WITH IRON PIN)



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM03
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+203.19)
 SHEET 1 OF 3**

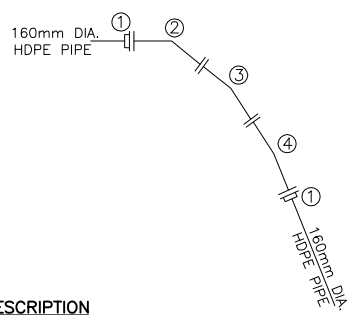
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H-1:4000, V-1:400 Date: APRIL 2020

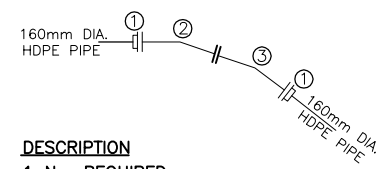
DRG No. M410/M0/NM/NM03/01 REV. 0

DETAIL CH. 0+114.07 & 0+414.28
LINE NM03 - 45°, 30° & 11.25° H.BEND



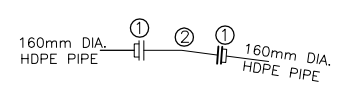
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND
 - ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND
 - ④ 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+167.85
LINE NM03 - 30° & 22.5° H.BEND



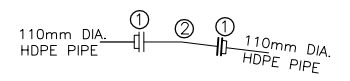
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND
 - ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+188.92, 0+208.28, 0+214.34, 0+300.27, 0+377.83, 0+828.28, 1+161.77, 1+176.58 & 1+188.09
LINE NM03 - 11.25° H.BEND



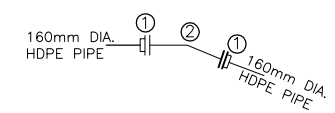
- DESCRIPTION**
9 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+425.67
LINE NM03 - 11.25° H.BEND



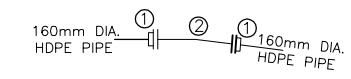
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 1+004.26 & 1+103.03
LINE NM03 - 30° H.BEND



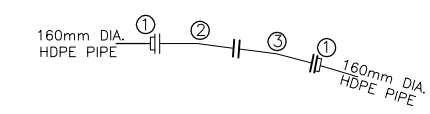
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+332.25, 1+026.53 & 1+069.60
LINE NM03 - 22.5° H.BEND



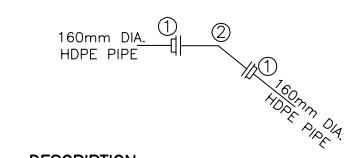
- DESCRIPTION**
3 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 1+089.30
LINE NM03 - 22.5° & 11.25° H.BEND



- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND
 - ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 1+119.84
LINE NM03 - 45° H.BEND




- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:
V.J. VIKING JOHNSON

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:
 **COAST WATER WORKS DEVELOPMENT AGENCY**
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:
 **MIBP MANGAT I.B. PATEL (MIBP) LIMITED**
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM03 FITTING DETAILS SHEET 2 OF 3

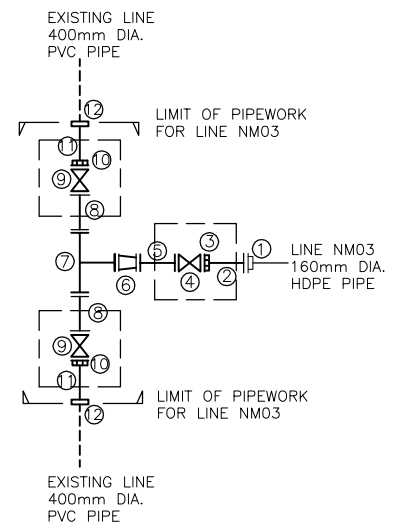
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM03/02** REV. 0

DETAIL CH. 0+000.00
LINE NM03 - INTERCONNECTION

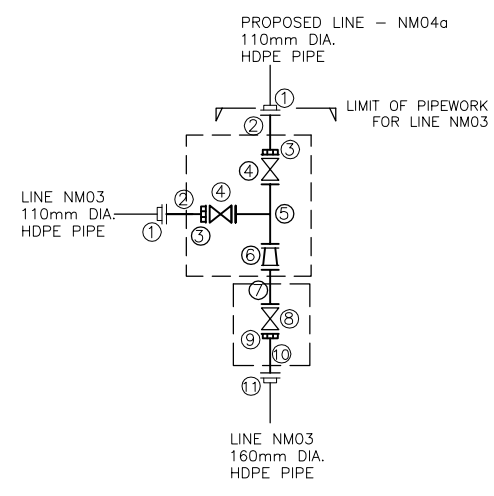


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑥ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 400x200mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 400mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 400mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+797.84
LINE NM03 - INTERCONNECTION

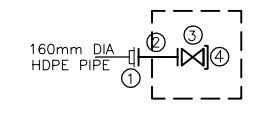


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑧ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑪ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 1+203.19
LINE NM03 - GV & BF

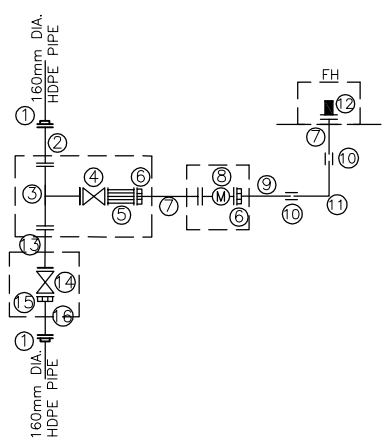


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 160mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ④ 1 No. 150mm DIA. BLANK FLANGE

DETAIL CH. 0+060.00 & 1+040.00
LINE NM03 - GV, WM & FH - 01 & 02

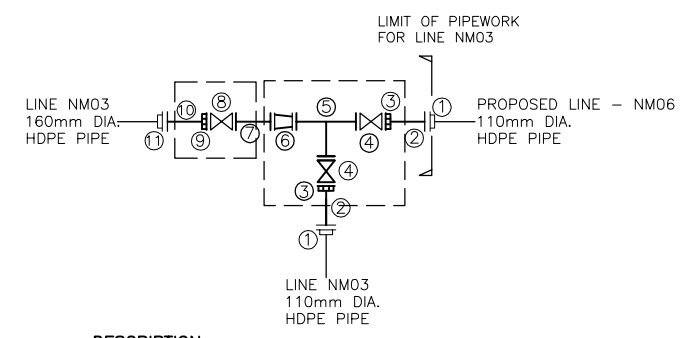


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+414.28
LINE NM03 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 150x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑧ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑪ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING


NOTES:


1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
CONSULTING ENGINEERS
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

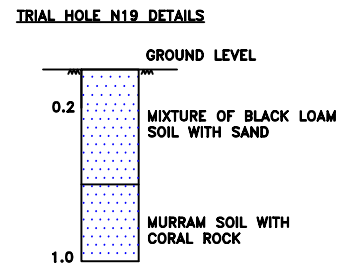
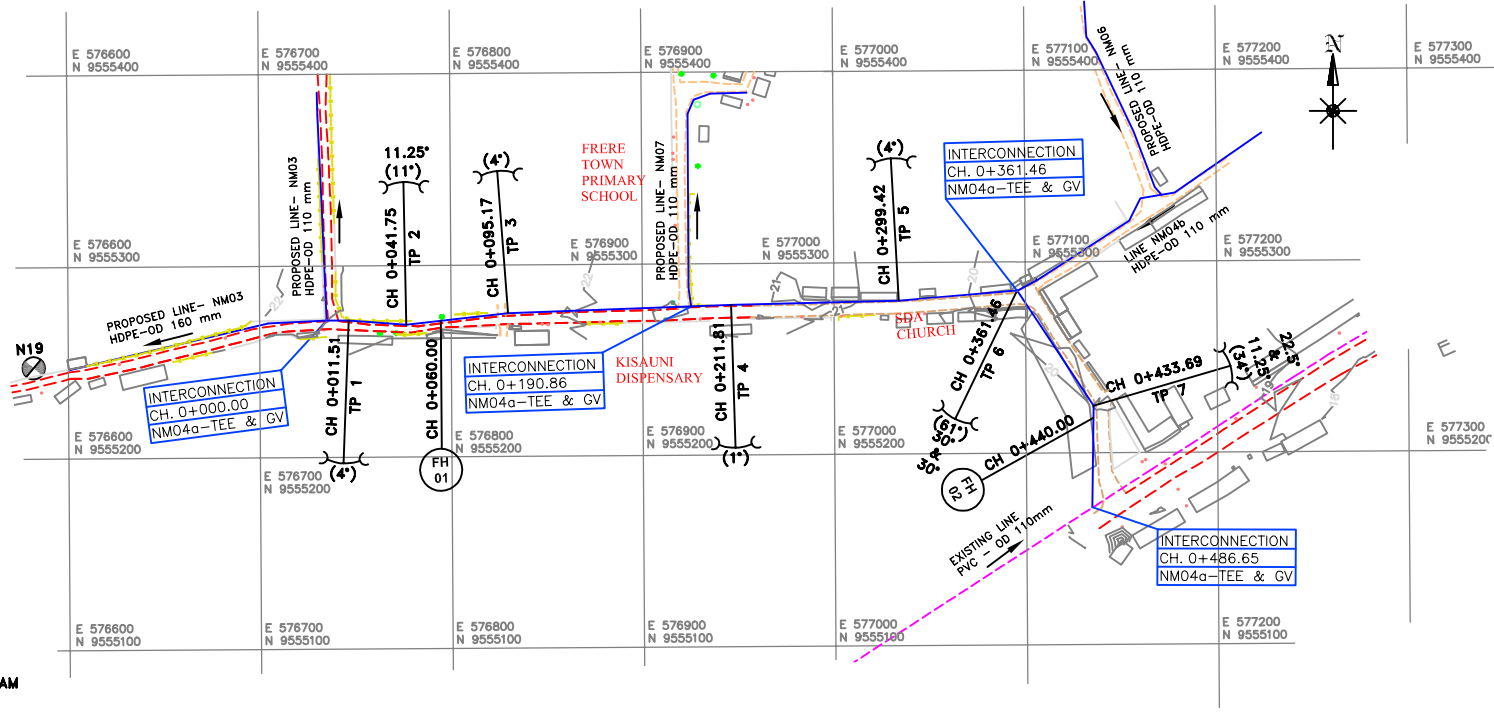
DRAWING TITLE:
LINE NM03 FITTING DETAILS SHEET 3 OF 3

Designed by: T.K.N Drawn by: V.G.K

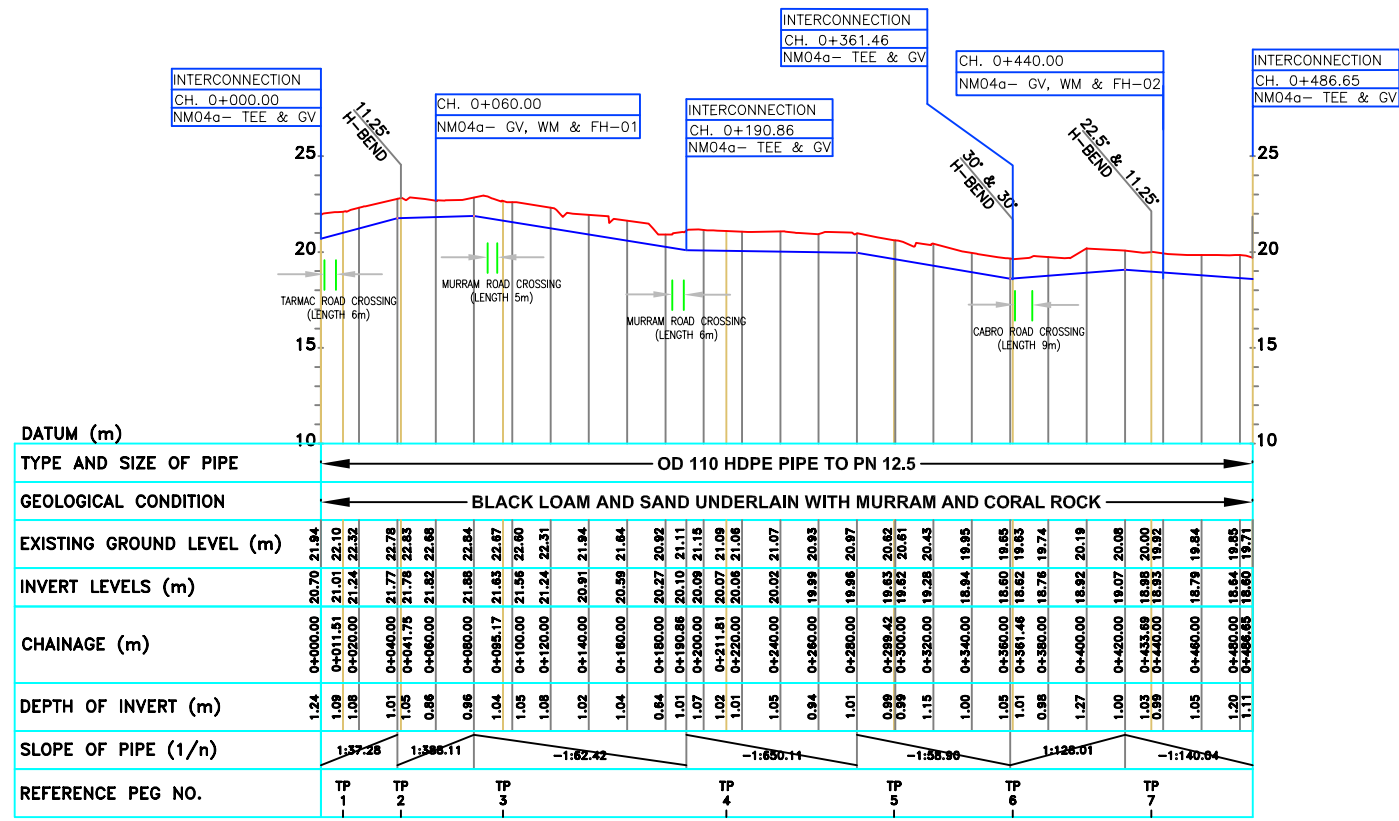
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM03/03** REV. 0



PLAN



LONGITUDINAL SECTION

DATUM (m)	BLACK LOAM AND SAND UNDERLAIN WITH MURRAM AND CORAL ROCK																														
TYPE AND SIZE OF PIPE	OD 110 HDPE PIPE TO PN 12.5																														
EXISTING GROUND LEVEL (m)	21.84	21.10	22.10	22.32	21.78	22.83	22.68	22.84	22.67	22.60	22.31	21.84	21.84	20.92	20.82	20.83	20.97	20.82	20.61	20.43	19.85	19.65	19.63	19.74	20.19	20.08	20.00	19.92	19.84	19.85	19.71
INVERT LEVELS (m)	20.70	21.01	21.54	21.77	21.78	21.82	21.88	21.85	21.83	21.86	21.84	20.91	20.99	20.97	20.92	20.93	20.97	20.82	20.61	20.43	19.85	19.65	19.63	19.74	20.19	20.08	20.00	19.92	19.84	19.85	19.71
CHAINAGE (m)	0+000.00	0+011.51	0+020.00	0+040.00	0+041.75	0+060.00	0+080.00	0+095.17	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+190.86	0+200.00	0+211.81	0+220.00	0+240.00	0+260.00	0+280.00	0+299.42	0+300.00	0+361.46	0+380.00	0+400.00	0+420.00	0+433.69	0+440.00	0+460.00	0+486.65	
DEPTH OF INVERT (m)	1.24	1.09	1.08	1.01	0.86	0.88	1.04	1.05	1.08	1.02	1.04	1.04	0.84	1.01	1.07	1.02	1.01	1.05	0.94	1.01	0.99	0.99	1.15	1.00	1.05	0.99	1.05	1.05	1.20	1.11	
SLOPE OF PIPE (1/n)	1:37.26		1:398.11				-1:82.42				-1:650.11				-1:58.96				1:128.01		-1:140.04										
REFERENCE PEG NO.	TP 1	TP 2	TP 3	TP 4	TP 5	TP 6	TP 7																								

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS	SIGN	DATE	APPROVED
	BY		
	CHECKED		
	BY		
	CHECKED		
	BY		
	CHECKED		

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

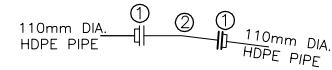
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM04a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+486.65)
 SHEET 1 OF 2**

Designed by: T.K.N | Drawn by: V.G.K
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

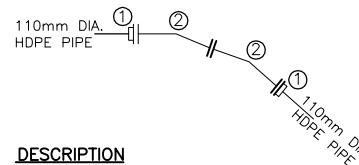
DETAIL CH. 0+041.75
LINE NM04a - 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

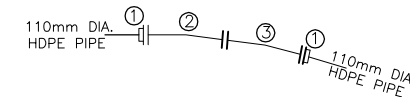
DETAIL CH. 0+361.46
LINE NM04a - 30° & 30° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS 30° BEND

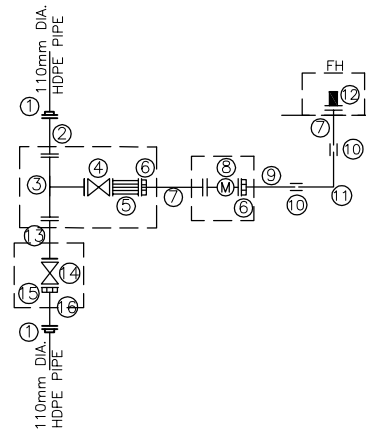
DETAIL CH. 0+433.69
LINE NM04a - 22.5° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

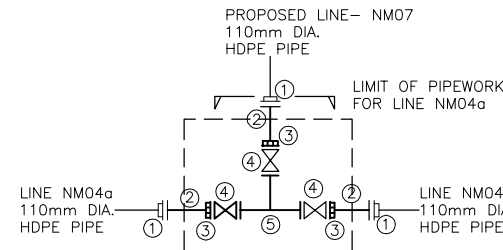
DETAIL CH. 0+060.00 & 0+440.00
LINE NM04a - GV, WM & FH - 01 & 02



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

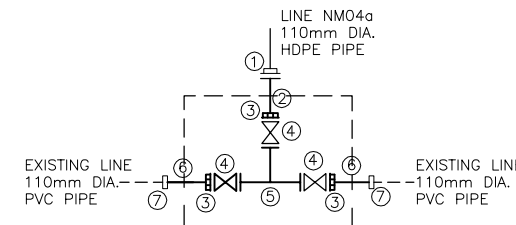
DETAIL CH. 0+190.86
LINE NM04a - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 3 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE

DETAIL CH. 0+486.65
LINE NM04a - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 1 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 2 Nos. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 2 Nos. 100mm DIA. V.J STEPPED COUPLING

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+000.00 SEE DRG. No. M410/M0/NM/NM03/03 AT CHAINAGE 0+797.84
8. FOR FITTING DETAILS AT CHAINAGE 0+361.46 SEE DRG. No. M410/M0/NM/NM04b AT CHAINAGE 0+000.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

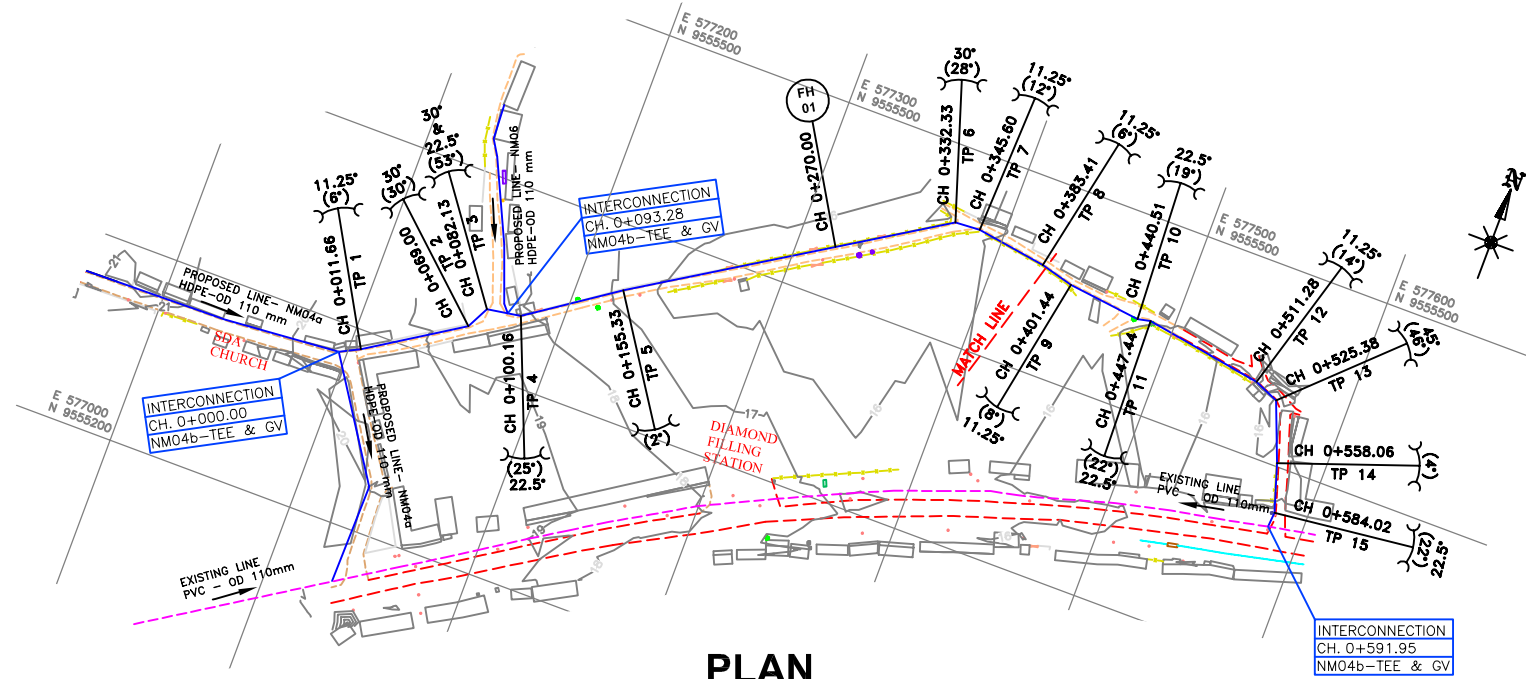
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

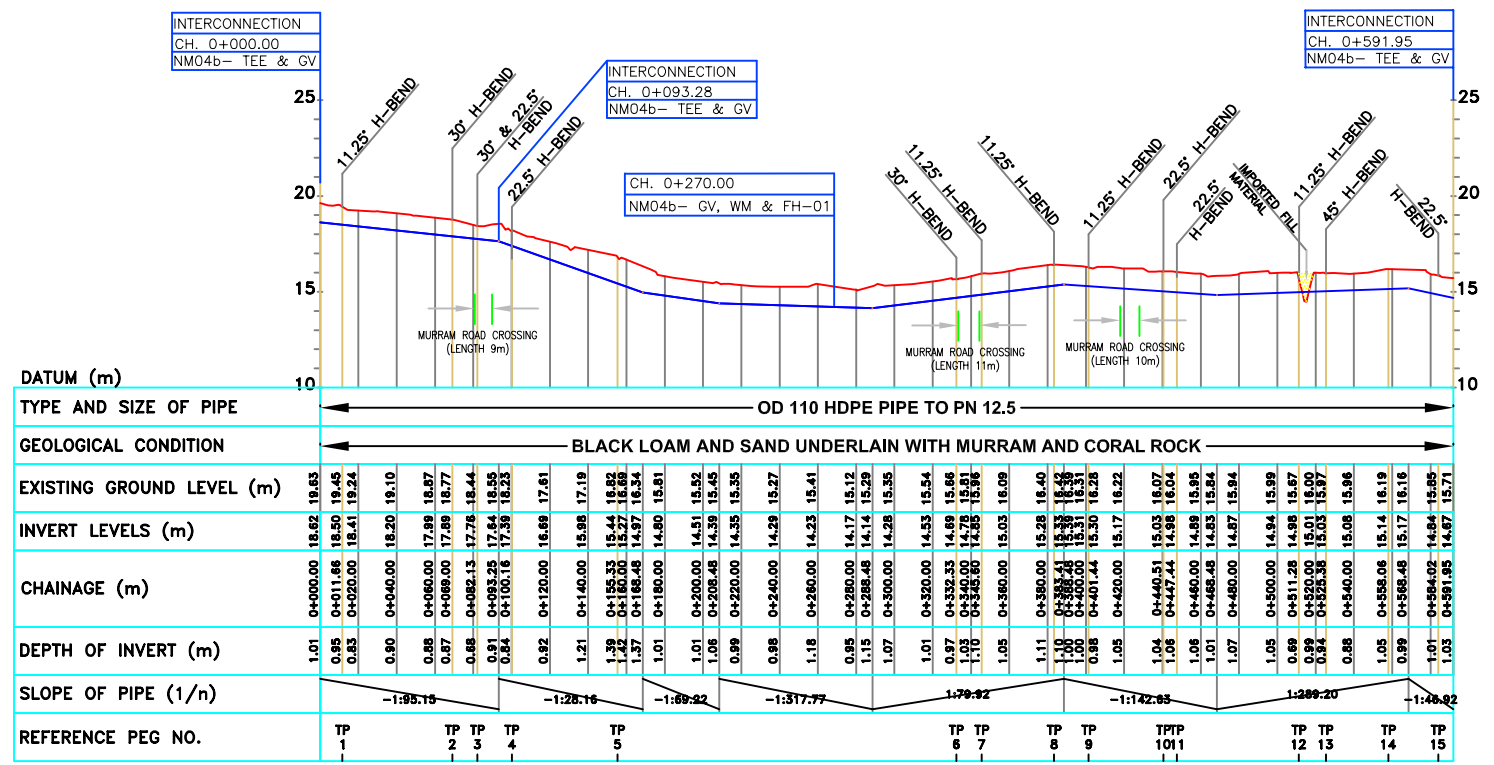
LINE NM04a FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM04a/02	REV. 0



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



REVISIONS	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

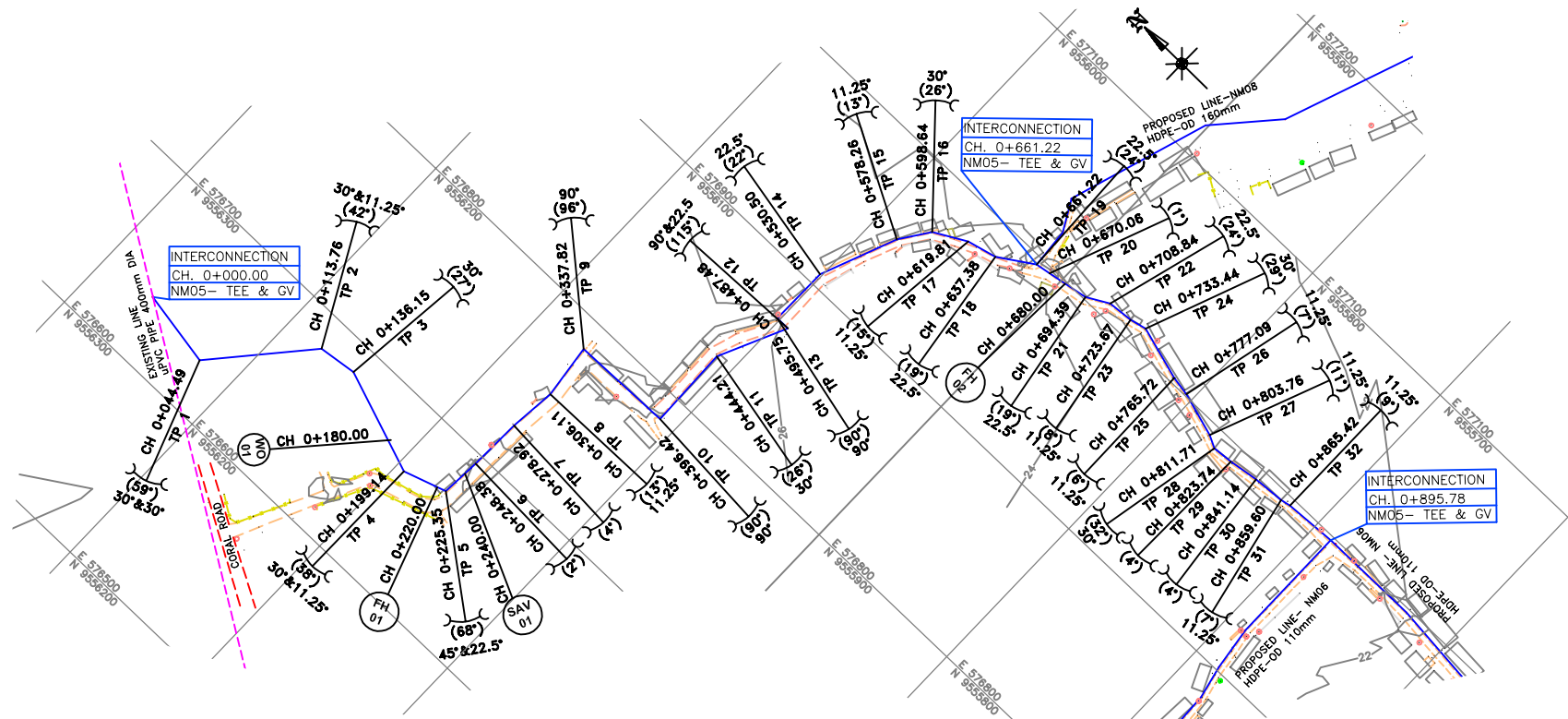
DRAWING TITLE:
**LINE NM04b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+591.95)
 SHEET 1 OF 2**

Designed by: T.K.N Drawn by: V.G.K

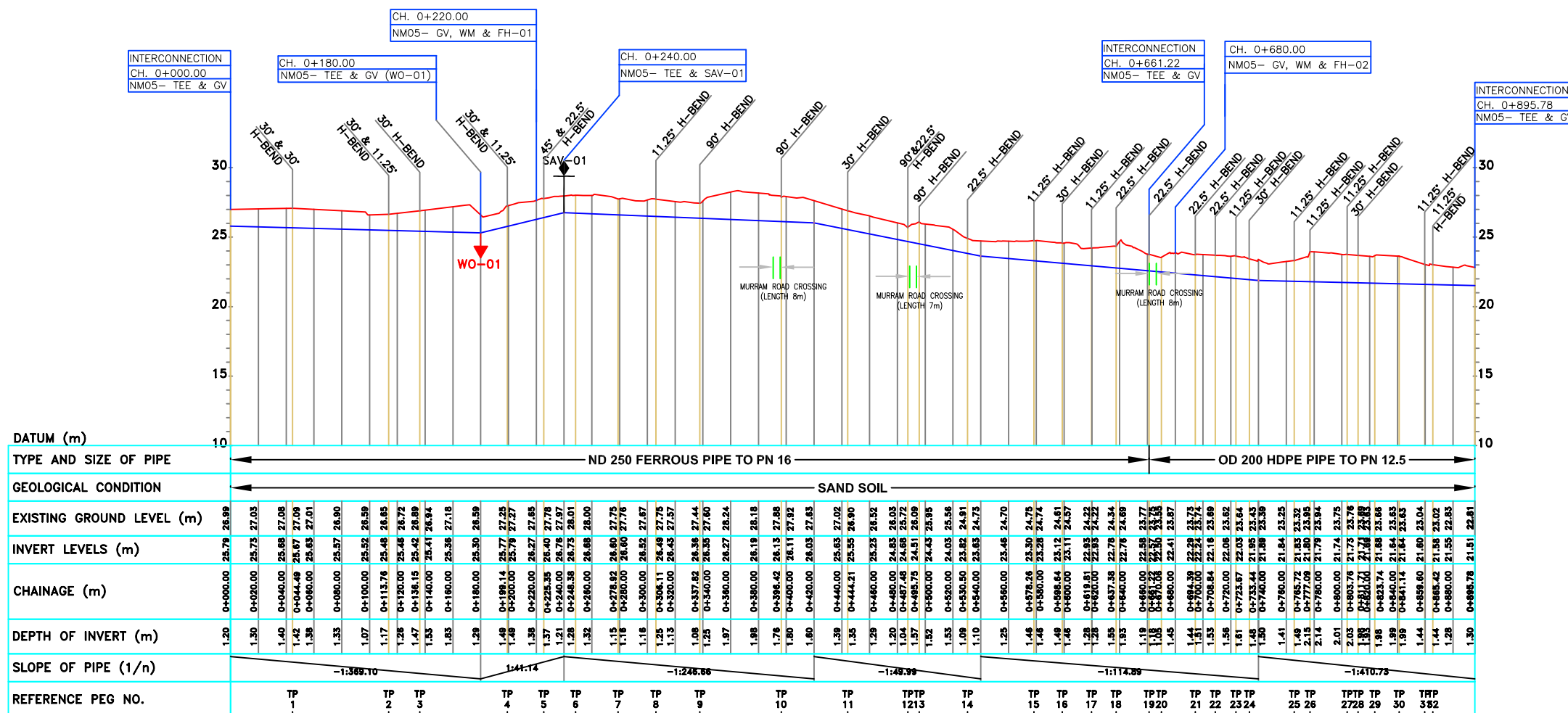
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM04b/01** REV. 0



PLAN




LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WO-01 WASHOUT VALVE & No.
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				
NO.	DESCRIPTION	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

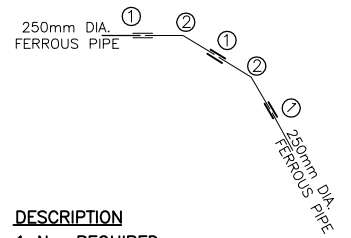
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:
**LINE NM05
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+895.78)
 SHEET 1 OF 3**

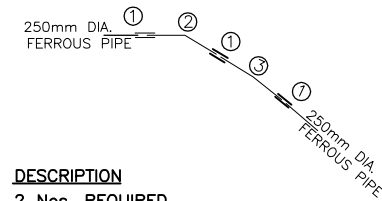
Designed by: V.G.K | Drawn by: P.G.M
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
DRG No. M410/M0/NM/NM05/01 | **REV.** 0

DETAIL CH. 0+044.49
LINE NM05 - 30° & 30° H.BEND



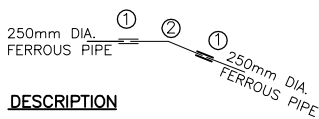
DESCRIPTION
1 No. REQUIRED
① 3 Nos. 250mm DIA. V.J. COUPLING
② 2 Nos. 250mm DIA. PLAIN ENDED FERROUS 30° BEND

DETAIL CH. 0+113.76 & 0+199.14
LINE NM05 - 30° & 11.25° H.BEND



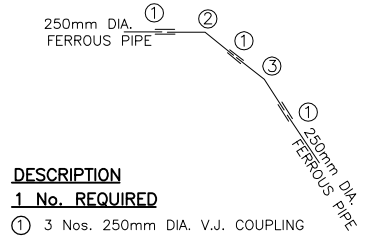
DESCRIPTION
2 Nos. REQUIRED
① 3 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 30° BEND
③ 1 No. 250mm DIA. PLAIN ENDED FERROUS 11.25° BEND

DETAIL CH. 0+136.15, 0+444.21 & 0+598.64
LINE NM05 - 30° H.BEND



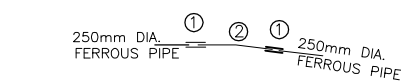
DESCRIPTION
3 Nos. REQUIRED
① 2 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 30° BEND

DETAIL CH. 0+225.35
LINE NM05 - 45° & 22.5° H.BEND



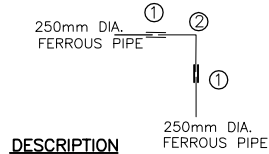
DESCRIPTION
1 No. REQUIRED
① 3 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 45° BEND
③ 1 No. 250mm DIA. PLAIN ENDED FERROUS 22.5° BEND

DETAIL CH. 0+306.11, 0+578.26 & 0+619.81
LINE NM05 - 11.25° H.BEND



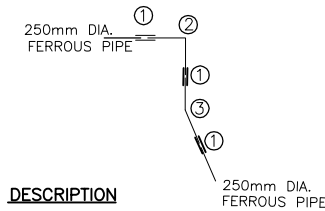
DESCRIPTION
3 Nos. REQUIRED
① 2 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 11.25° BEND

DETAIL CH. 0+337.82, 0+396.42, & 0+495.75
LINE NM05 - 90° H.BEND



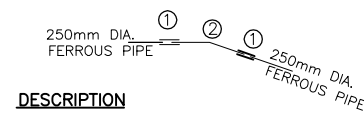
DESCRIPTION
3 Nos. REQUIRED
① 2 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 90° BEND

DETAIL CH. 0+487.48
LINE NM05 - 90° & 22.5° H.BEND



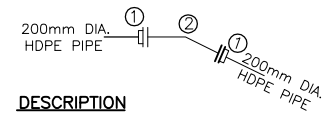
DESCRIPTION
1 No. REQUIRED
① 3 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 90° BEND
③ 1 No. 250mm DIA. PLAIN ENDED FERROUS 22.5° BEND

DETAIL CH. 0+530.50, 0+637.38, 0+661.22
LINE NM05 - 22.5° H.BEND



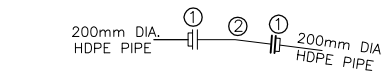
DESCRIPTION
3 Nos. REQUIRED
① 2 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS 22.5° BEND

DETAIL CH. 0+694.39 & 0+708.84
LINE NM05 - 22.5° H.BEND



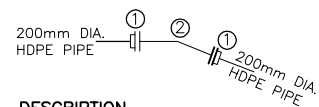
DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+723.67, 0+765.72, 0+777.09, 0+803.76, 0+859.60, & 0+865.42
LINE NM05 - 11.25° H.BEND



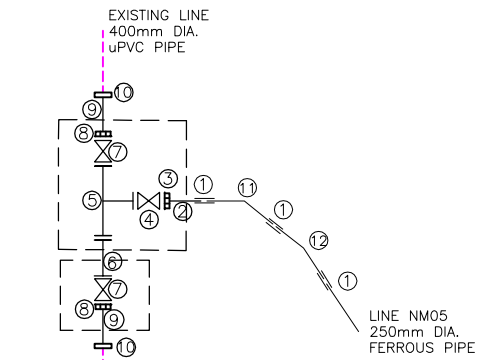
DESCRIPTION
6 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+733.44 & 0+811.71
LINE NM05 - 30° H.BEND



DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+000.00
LINE NM05 - INTERCONNECTION




DESCRIPTION
1 No. REQUIRED
① 3 Nos. 250mm DIA. V.J. COUPLING
② 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
③ 1 No. 250mm DIA. V.J. FLANGE ADAPTOR
④ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
⑤ 1 No. 400x250mm DIA. ALL FLANGED FERROUS TEE
⑥ 1 No. 400mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
⑦ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
⑧ 2 Nos. 400mm DIA. V.J. FLANGE ADAPTOR
⑨ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
⑩ 2 Nos. 400mm DIA. V.J. STEPPED COUPLING
⑪ 1 No. 250mm DIA. PLAIN ENDED FERROUS 45° BEND
⑫ 1 No. 250mm DIA. PLAIN ENDED FERROUS 22.5° BEND

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - FOR FITTING DETAILS AT CH. 0+661.22 SEE DRG. NO. M410/MO/NM/NM08/02 AT CH. 0+000.00
 - FOR FITTING DETAILS AT CH. 895.24 SEE DRG. NO. M410/MO/NM/NM06/02 AT CH. 0+275.32

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 CONSULTING ENGINEERS
 P.O BOX 48674,00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

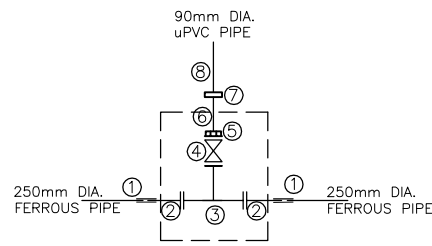
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM05 FITTING DETAILS SHEET 2 OF 3

Designed by: V.G.K	Drawn by: P.G.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM05/02	REV. 0

CH. 0+180.00
DETAIL LINE NM05 - TEE & GV (WO) - 01

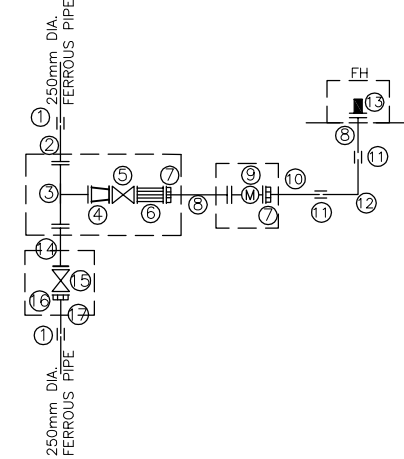


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 250mm DIA. V.J. COUPLING
- ② 2 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ③ 1 No. 250x80mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. V.J. FLANGE ADAPTOR
- ⑥ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 80mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 90mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

CH. 0+220.00
DETAIL LINE NM05 - GV, WM & FH - 01

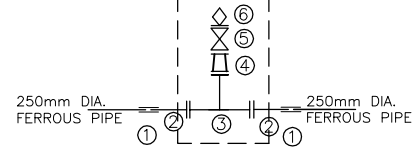


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 250mm DIA. V.J. COUPLING
- ② 1 No. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ③ 1 No. 250x150mm DIA. ALL FLANGED TEE
- ④ 1 No. 150x80mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑥ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑦ 2 Nos. 80mm DIA. V.J. FLANGE ADAPTOR
- ⑧ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑨ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑩ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑪ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑫ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑬ 1 No. 80mm DIA. FIRE HYDRANT
- ⑭ 1 No. 250mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑮ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑯ 1 No. 250mm DIA. V.J. FLANGE ADAPTOR
- ⑰ 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG

CH. 0+240.00
DETAIL LINE NM05 - TEE & SAV - 01

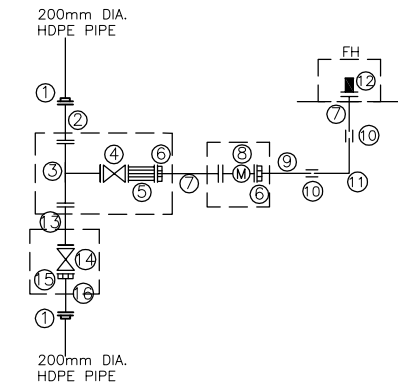


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 250mm DIA. V.J. COUPLING
- ② 2 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ③ 1 No. 250x150mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 150x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑥ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

CH. 0+680.00
DETAIL LINE NM05 - GV, WM & FH - 02



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J. FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J. FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- 7. FOR FITTING DETAILS AT CH. 0+661.22 SEE DRG. NO. M410/M0/NM/NM08/02 AT CH. 0+000.00
- 8. FOR FITTING DETAILS AT CH. 895.24 SEE DRG. NO. M410/M0/NM/NM06/02 AT CH. 0+275.32

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

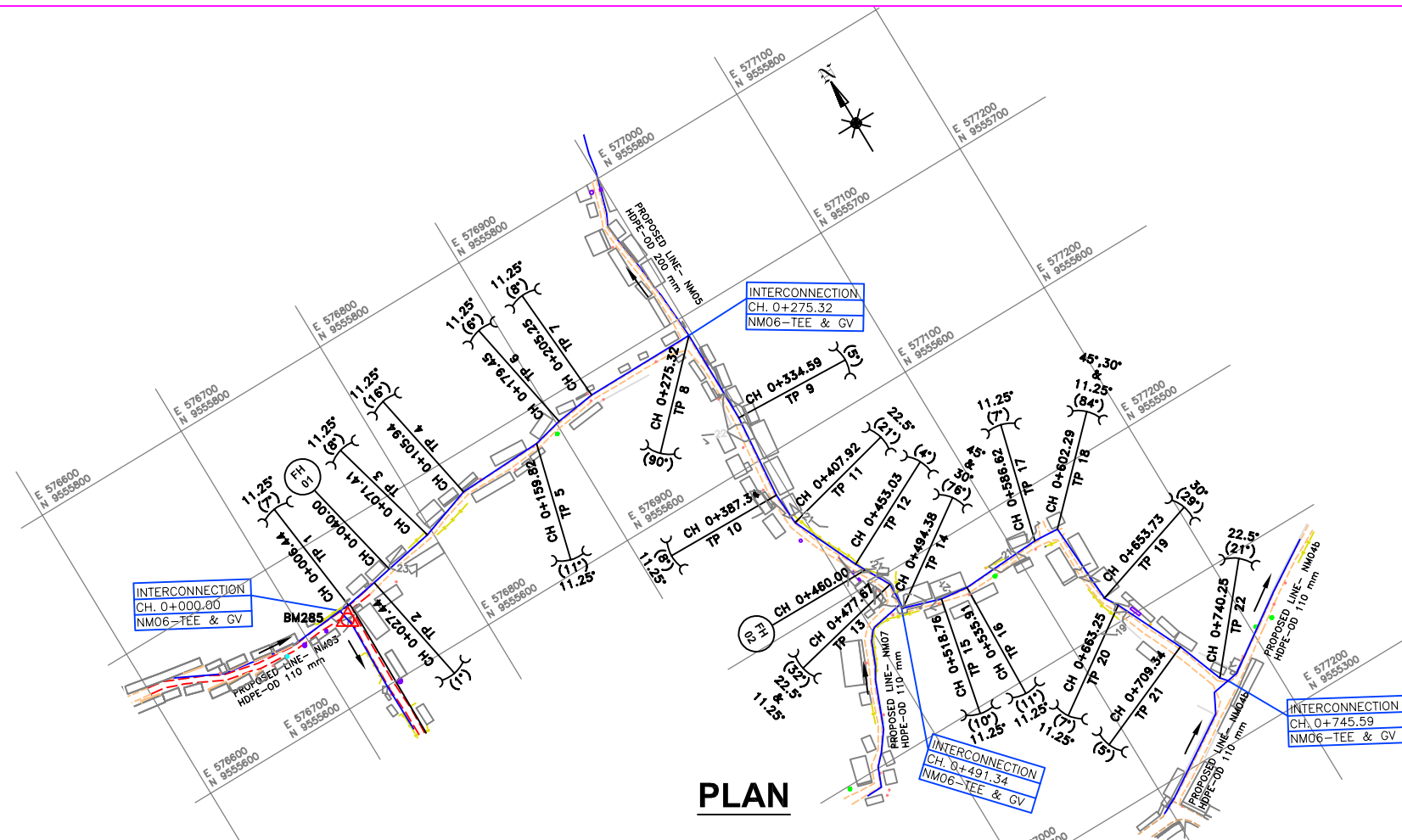
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM05 FITTING DETAILS SHEET 3 OF 3

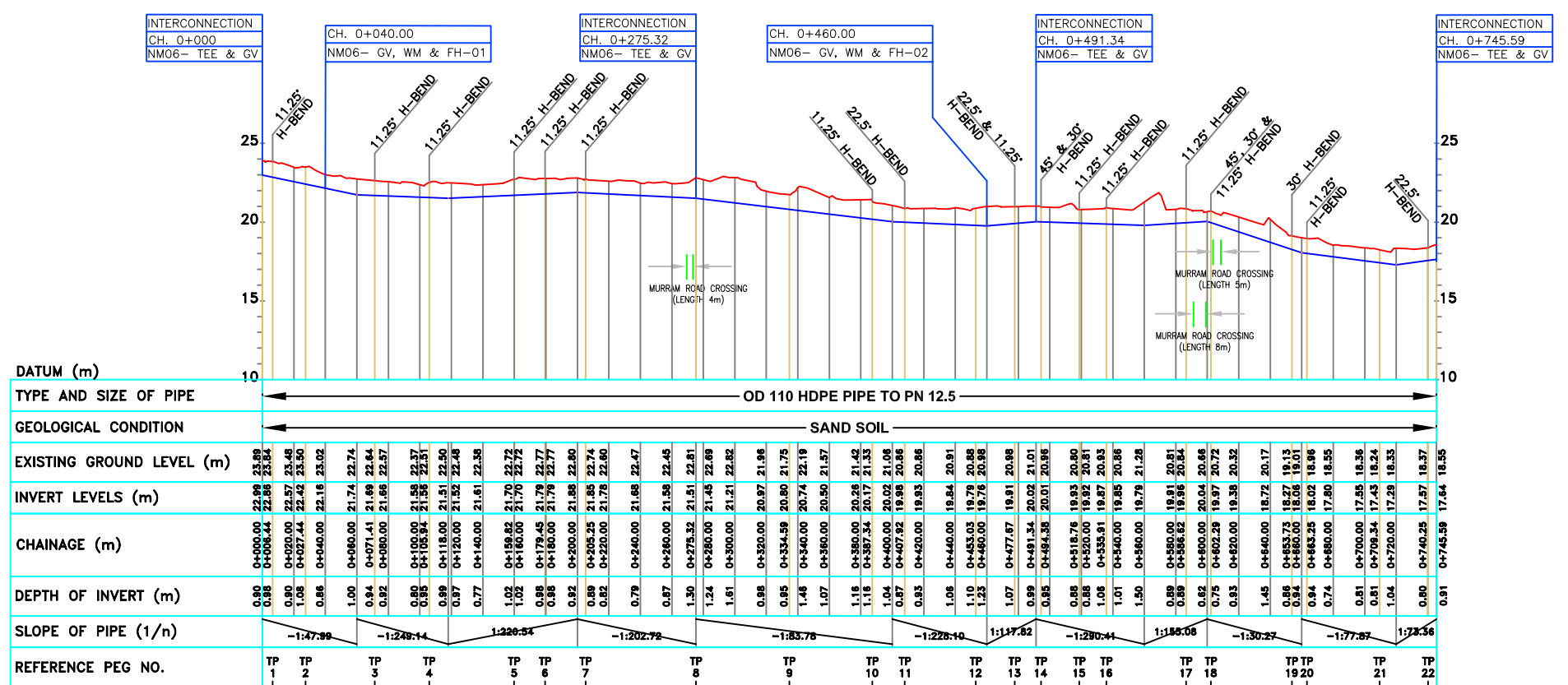
Designed by: V.G.K	Drawn by: P.G.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM05/03	REV. 0



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - THE SURVEY WAS BASED ON THE DATUM BM285 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM285	576,727.14	9,555,647.33	24.05

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GATE VALVE
 - FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)



REVISIONS				SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

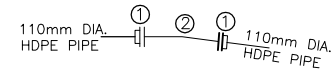
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM06
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+745.59)
 SHEET 1 OF 2**

Designed by: T.K.N | Drawn by: V.G.K
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/M0/NM/06/01** | REV. 0

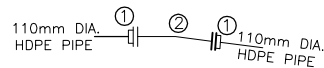
DETAIL CH. 0+006.44, 0+071.41, 0+105.94, 0+159.82, 0+179.45, 0+205.25, 0+387.34, 0+518.76, 0+535.91, 0+586.62 & 0+663.25
LINE NM06 - 11.25° H.BEND



DESCRIPTION
11 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

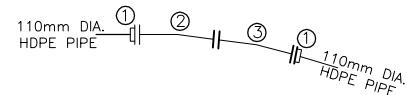
DETAIL CH. 0+407.92 & 0+740.25
LINE NM06 - 22.5° H.BEND



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

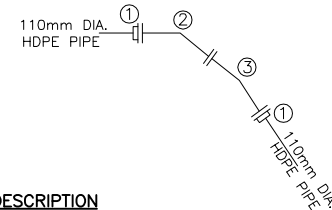
DETAIL CH. 0+477.67
LINE NM06 - 22.5° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

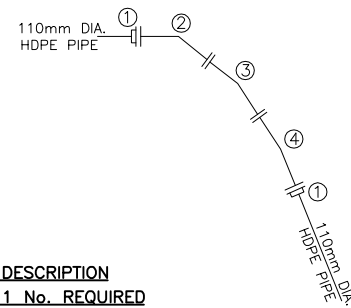
DETAIL CH. 0+494.38
LINE NM06 - 45° & 30° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

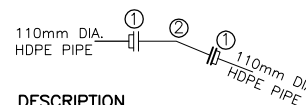
DETAIL CH. 0+602.29
LINE NM06 - 45°, 30° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ④ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

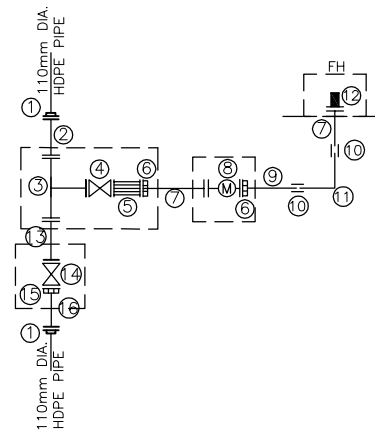
DETAIL CH. 0+653.73
LINE NM06 - 30° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

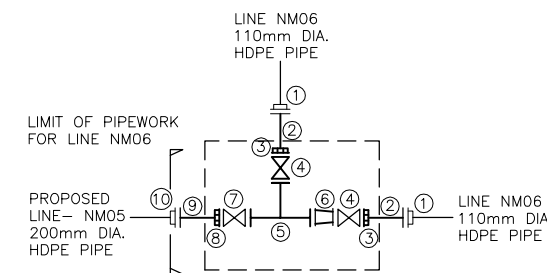
DETAIL CH. 0+040.00 & 0+460.00
LINE NM06 - GV, WM & FH - 01 & 02



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

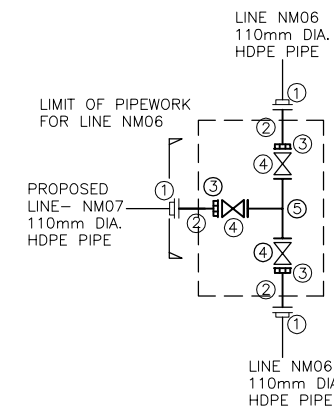
DETAIL CH. 0+275.32
LINE NM06 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED FERROUS CONCENTRIC REDUCER
- ⑦ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑧ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑨ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑩ 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

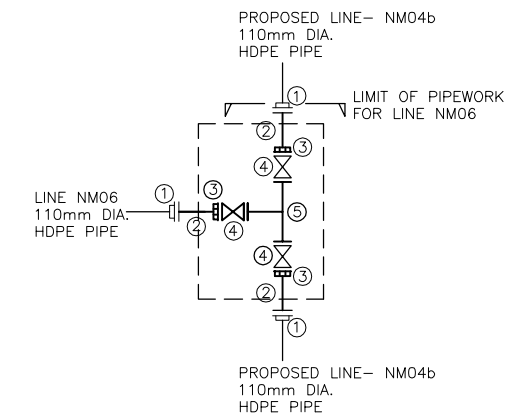
DETAIL CH. 0+491.34
LINE NM06 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 3 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE

DETAIL CH. 0+745.59
LINE NM06 - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 3 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CH. 0+000.00 SEE DRG. NO. M410/M0/NM/NM03/03 AT CH. 0+414.28

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

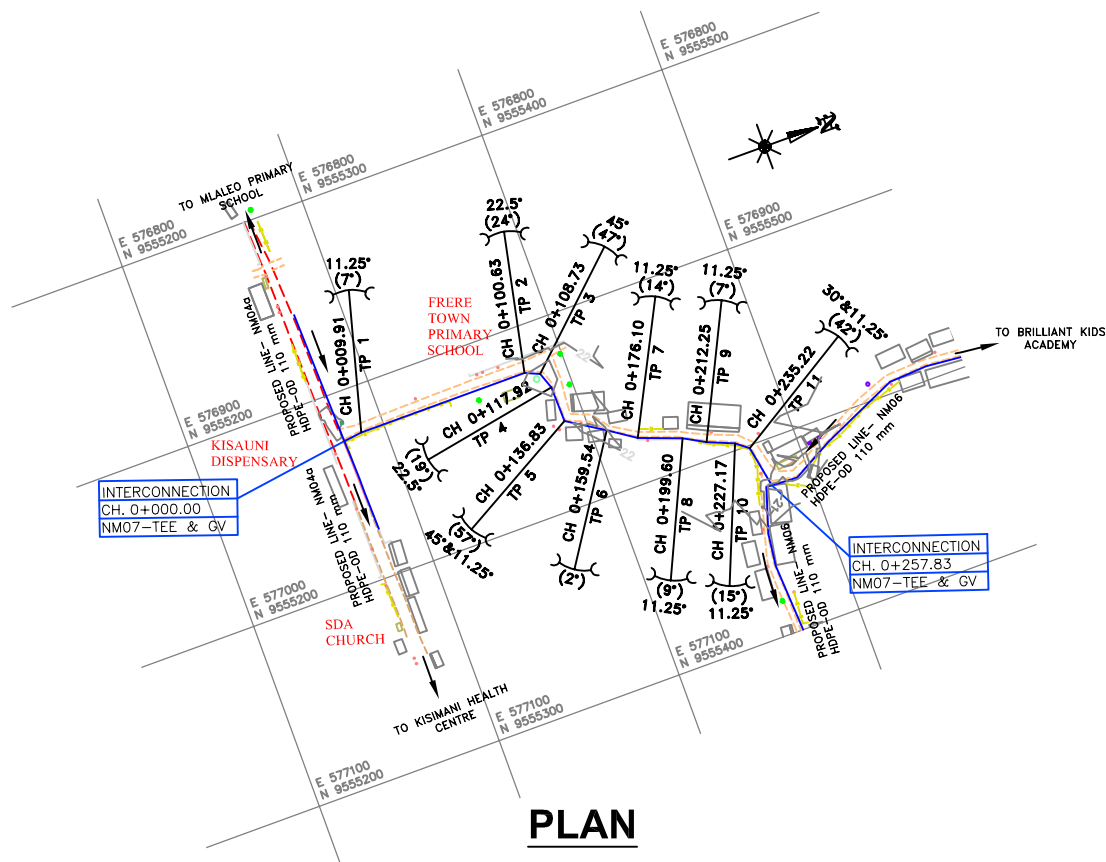
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

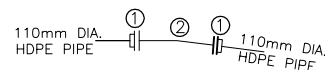
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM06 FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM06/02	REV. 0



DETAIL CH. 0+009.91, 0+176.10, 0+199.60, 0+212.25 & 0+227.17
LINE NM07 - 11.25° H.BEND

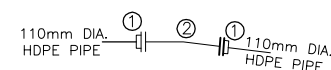


DESCRIPTION

5 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+100.63 & 0+117.92
LINE NM07 - 22.5° H.BEND

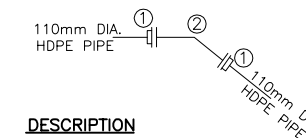


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+108.73
LINE NM07 - 45° H.BEND

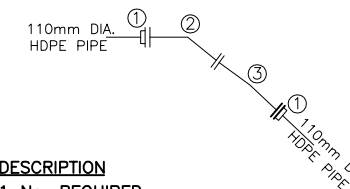


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+136.83
LINE NM07 - 45° & 11.25° H.BEND

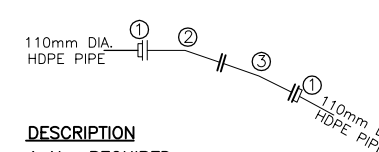


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

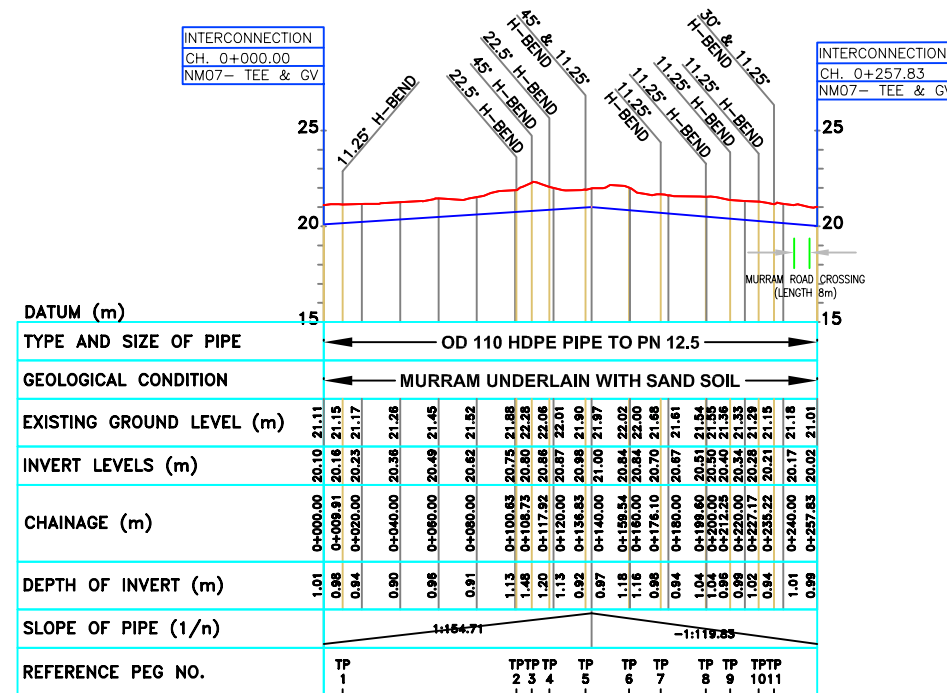
DETAIL CH. 0+235.22
LINE NM07 - 30° & 11.25° H.BEND



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND



LONGITUDINAL SECTION

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+000.00 SEE DRG. NO. M410/M0/NM/NM04/02 AT CHAINAGE 0+190.86
8. FOR FITTING DETAILS AT CHAINAGE 0+257.83 SEE DRG. NO. M410/M0/NM/NM06/03 AT CHAINAGE 0+491.34

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

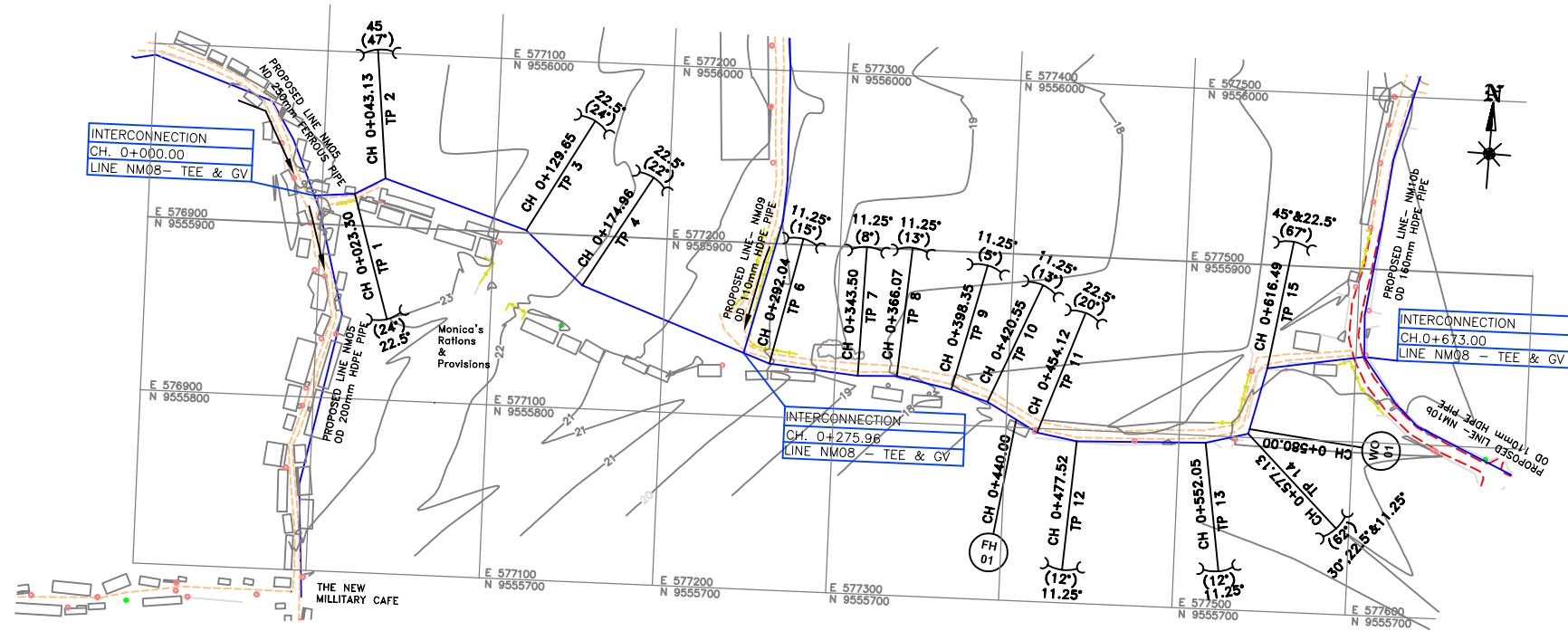
**LINE NM07
PLAN & LONGITUDINAL SECTION
(CH 0+000.00 - 0+257.83)
SHEET 1 OF 1**

Designed by: T.K.N Drawn by: V.G.K

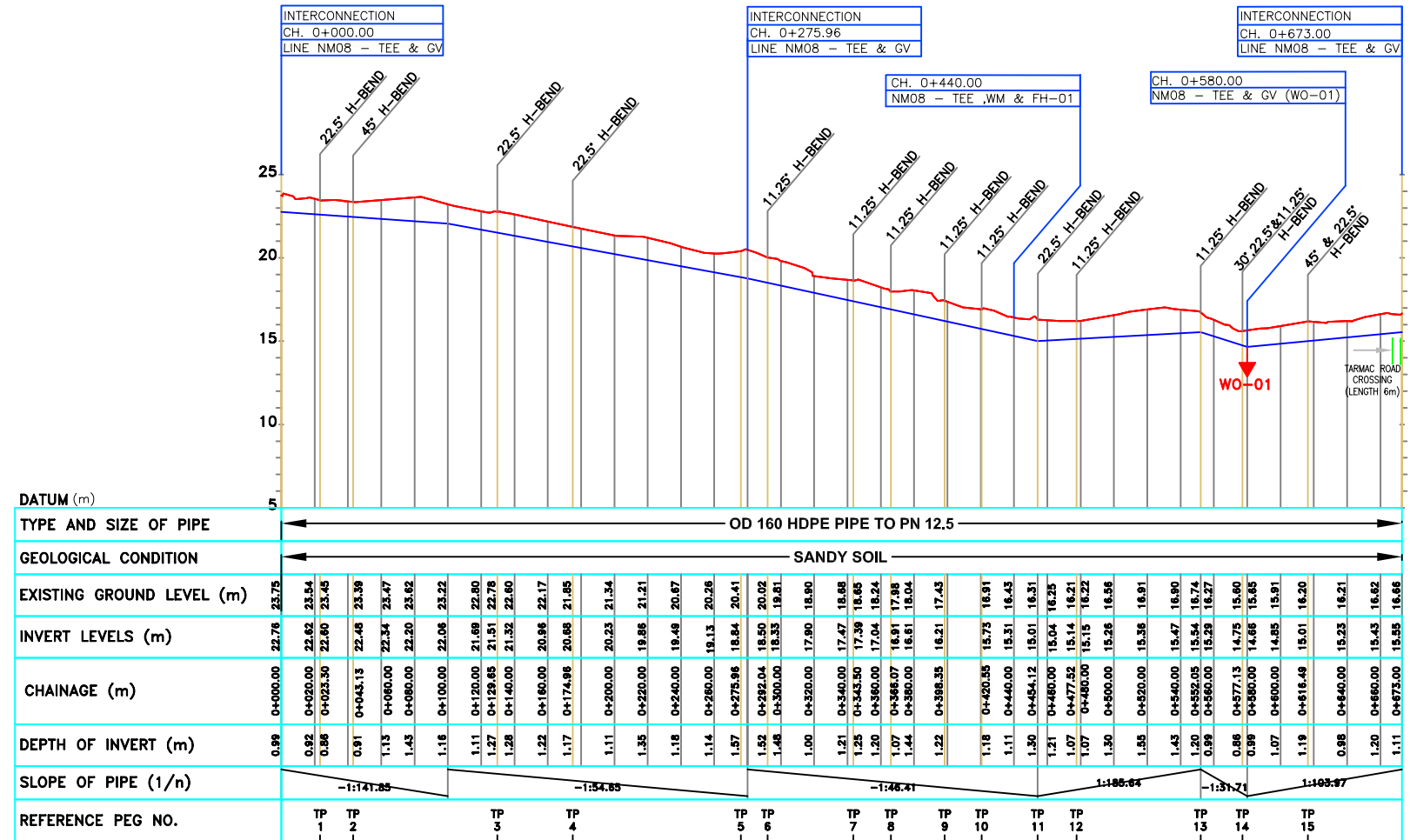
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. M410/M0/NM/NM07/01 REV. 0



PLAN



LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - SV-01 SECTIONAL VALVE & No.
 - WO-01 WASHOUT VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM08
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+673.00)
 SHEET 1 OF 2**

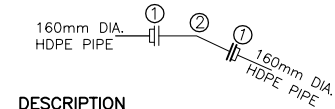
Designed by: S.C.K Drawn by: P.G.M

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/MO/NM/NM08/01** REV. 0

CH. 0+023.30, 0+129.65, 0+174.96, & 454.12
DETAIL LINE NM08 - 22.5° H.BEND

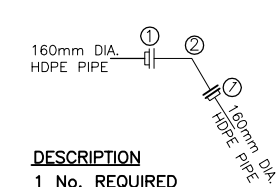


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTER(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+043.13
DETAIL LINE NM08 - 45° H.BEND

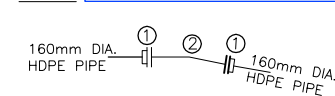


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTER(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND

CH. 0+292.04, 0+343.50, 0+366.07, 0+398.35, 0+ 420.55, 0+477.52 & 0+552.05
DETAIL LINE NM08 - 11.25° H.BEND

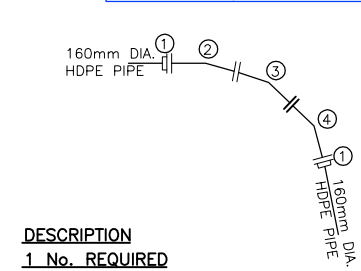


DESCRIPTION

7 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+577.13
DETAIL LINE NM08 - 30°, 22.5° & 11.25° BEND

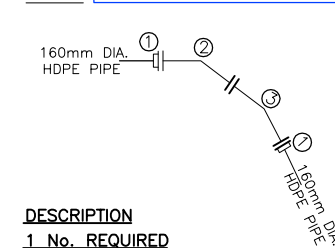


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. 30° ALL FLANGED FERROUS BEND
- ③ 1 No. 150mm DIA. 22.5° ALL FLANGED FERROUS BEND
- ④ 1 No. 150mm DIA. 11.25° ALL FLANGED FERROUS BEND

CH. 0+616.49
DETAIL LINE NM08 - 45° & 22.5° H.BEND

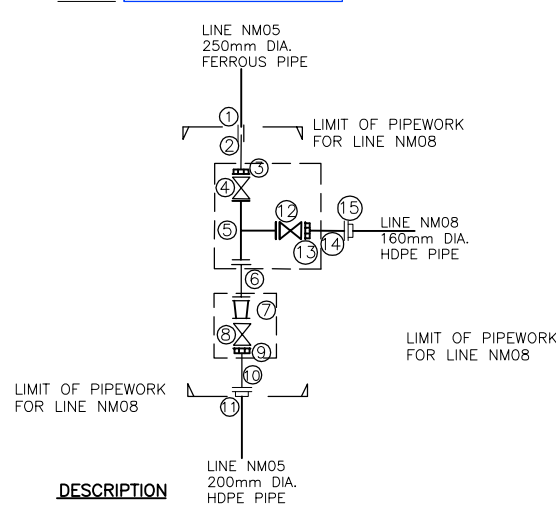


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTER(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+000.00
DETAIL NM08 - INTERCONNECTION

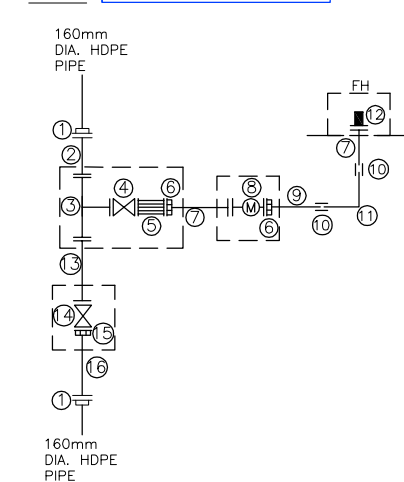


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 250mm DIA. V.J. COUPLING
- ② 1 No. 250mm DIA. PLAIN ENDED PIPE 1200mm LONG
- ③ 1 No. 250mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 250x150mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 250mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑦ 1 No. 250x200mm DIA. ALL FLANGED FERROUS CONCENTRIC REDUCER
- ⑧ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑪ 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ⑫ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑬ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑭ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑮ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

CH.0+440.00
DETAIL LINE NM08 - GV, WM & FH-01

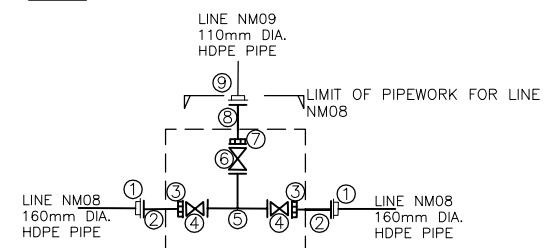


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 150mm DIA. FLANGE ADAPTOR
- ⑯ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

CH.0+275.96
DETAIL LINE NM08 - INTERCONNECTION

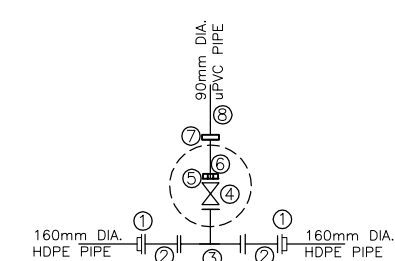


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 150mm DIA. FLANGED SPIGOT PIPE 1200mm LONG
- ③ 2 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ④ 2 Nos. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑦ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
- ⑧ 1 No. 100mm DIA. FLANGED SPIGOT PIPE 1200mm LONG
- ⑨ 1 No. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

CH. 0+580.00
DETAIL LINE NM08 - TEE & GV (WO) - 01

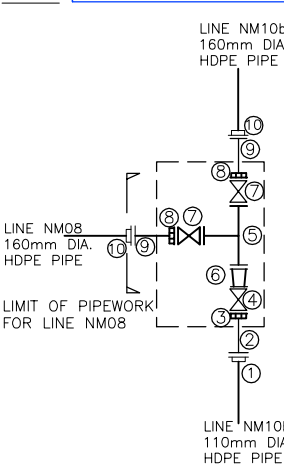


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. V.J FLANGE ADAPTOR
- ⑥ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 80mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 90mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

CH. 0+673.00
DETAIL NM08 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150x150mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 150x100mm DIA. ALL FLANGED FERROUS CONCENTRIC REDUCER
- ⑦ 2 Nos. 150mm DIA. ALL FLANGED GATE VALVE
- ⑧ 2 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ⑨ 2 Nos. 150mm DIA. FLANGED SPIGOT PIPE 1200mm LONG
- ⑩ 2 Nos. 160mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

NOTES:

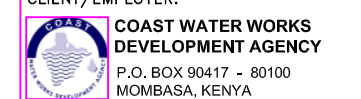
- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER
()	PROPOSED VALVE BOX

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:



CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
 CONSULTING ENGINEERS
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

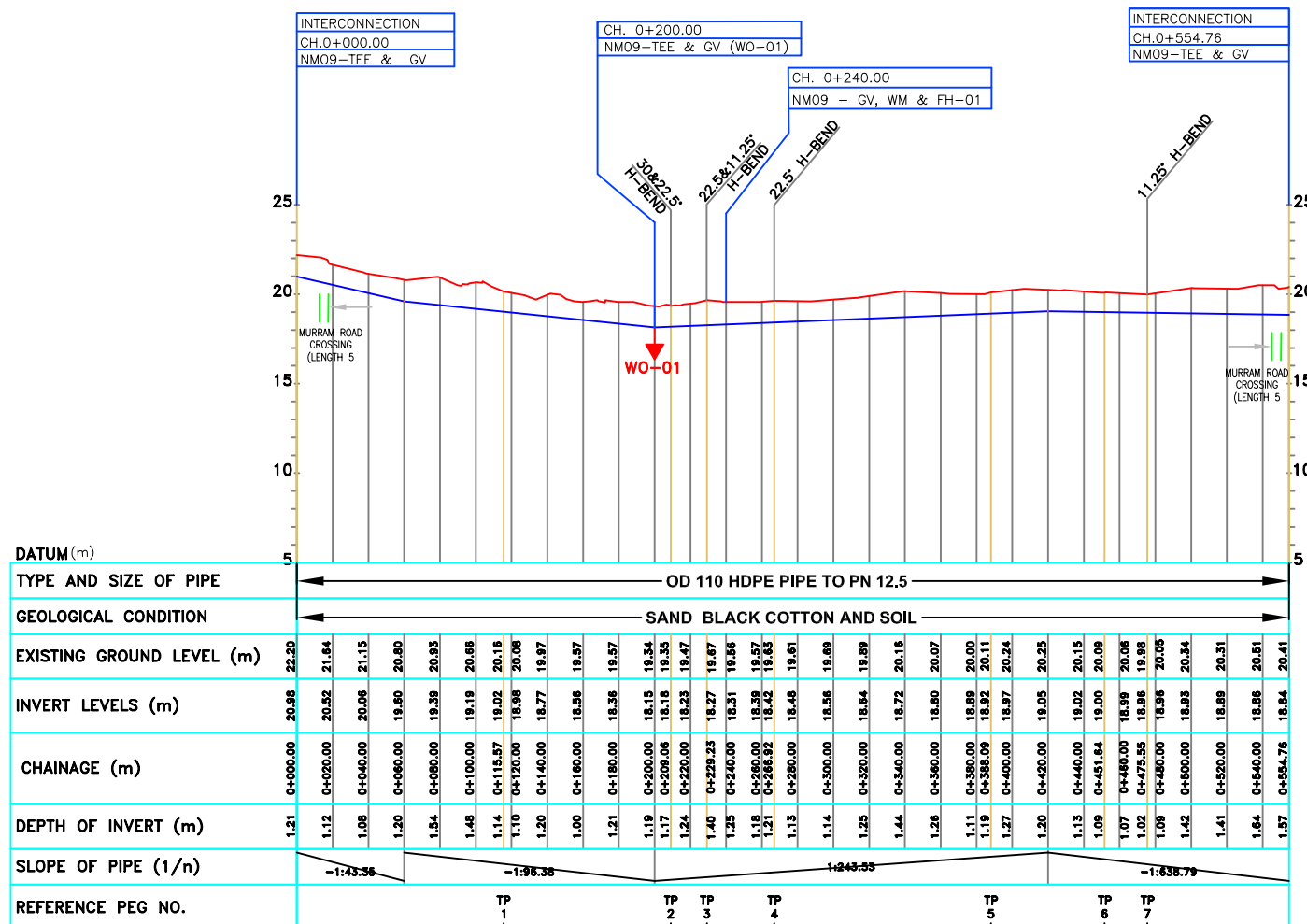
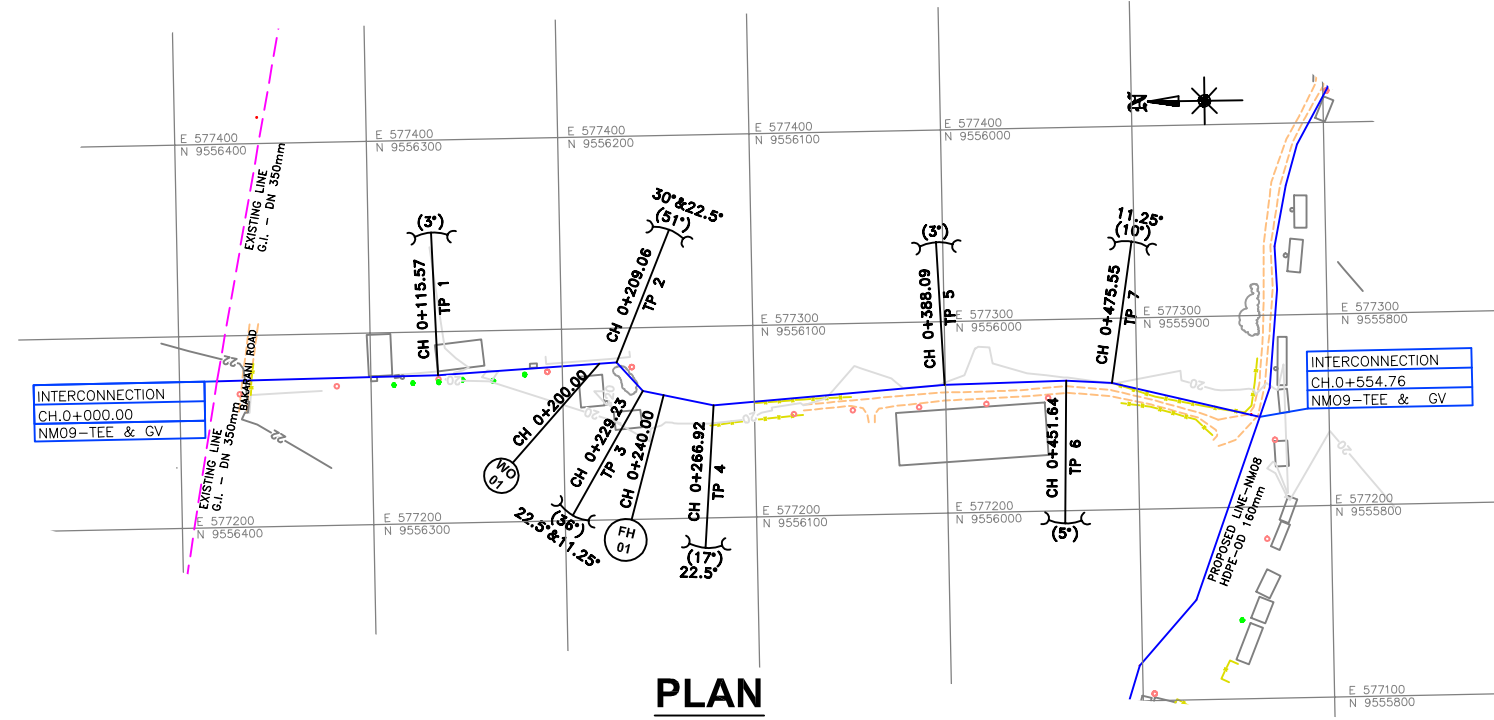
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM08 FITTING DETAILS SHEET 2 OF 2

Designed by:	E.M.M	Drawn by:	P.G.M
Checked by:	E.I.M	Approved by:	R.S.R
Scale:	H- 1:4000, V- 1:400	Date:	APRIL 2020
DRG No.	M410/MO/NM/NM08/02	REV.	0



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WO-01 WASHOUT VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM09
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+554.76)
 SHEET 1 OF 2**

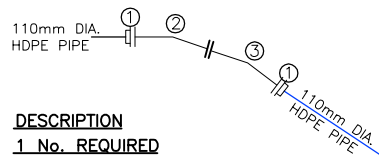
Designed by: E.M.M Drawn by: P.G.M

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/MO/NM/NM09/01** REV. 0

CH. 0+209.06
DETAIL LINE NM09 - 30° & 22.5° H.BEND

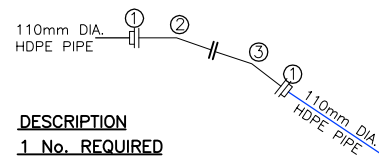


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+229.23
DETAIL LINE NM09 - 22.5° & 11.25° H.BEND

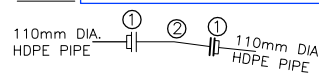


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+475.55
DETAIL LINE NM09 - 11.25° H.BEND

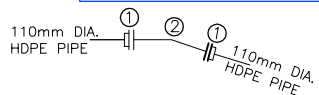


DESCRIPTION

1 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+266.92
DETAIL LINE NM09 - 11.25° H.BEND

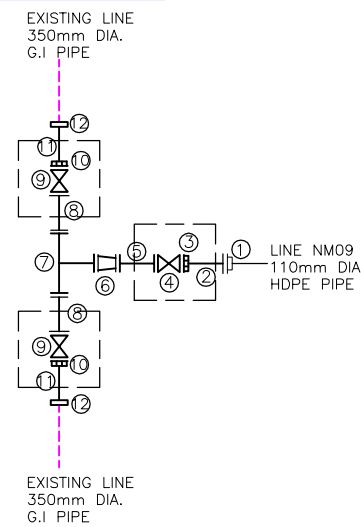


DESCRIPTION

1 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+000.00
DETAIL LINE NM09 - INTERCONNECTION

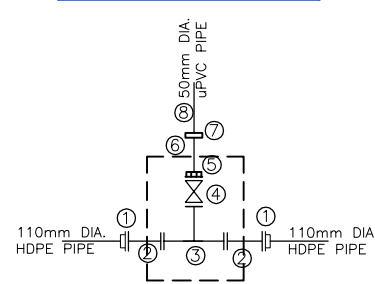


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 350mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 350mm DIA. V.J STEPPED COUPLING

CH. 0+200
DETAIL LINE NM09 - TEE & GV (WO) - 01

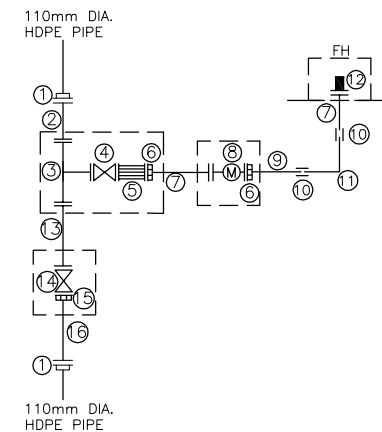


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100x50mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 50mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 50mm DIA. V.J FLANGE ADAPTER
- ⑥ 1 No. 50mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 50mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 50mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

CH.0+240.00
DETAIL LINE NM09 - GV, WM & FH-01



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FITTING DETAILS AT CHAINAGE 0+554.76 SEE LINE NM08 DRG NO. M410/MO/NM/NM08 /02 CHAINAGE 0+275.96

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- V.J. VIKING JOHNSON
- GV GATE VALVE
- FH FIRE HYDRANT
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- WM WATER METER
- PROPOSED MASONRY CHAMBER
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

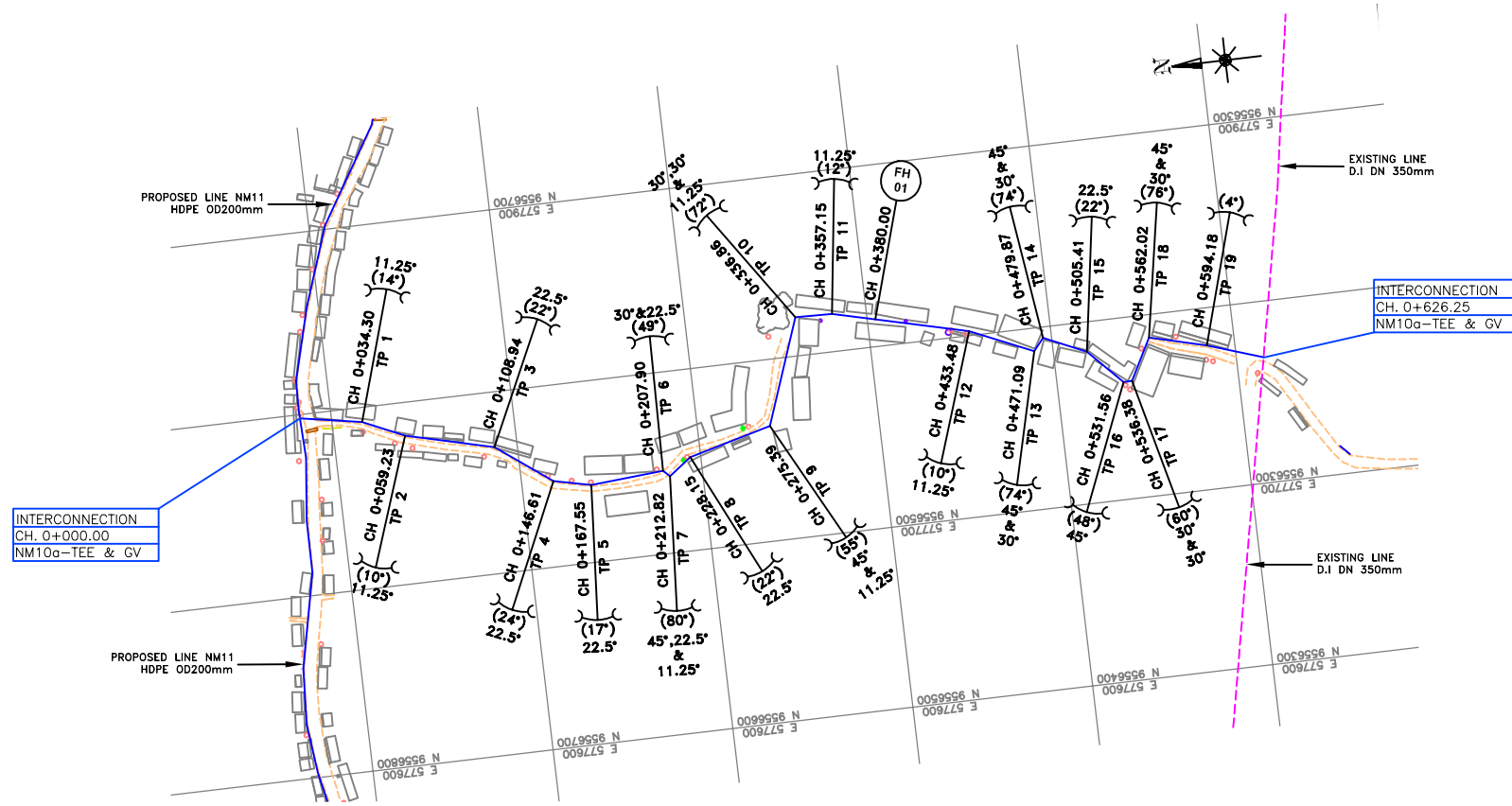
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:
LINE NM09 FITTING DETAILS SHEET 2 OF 2

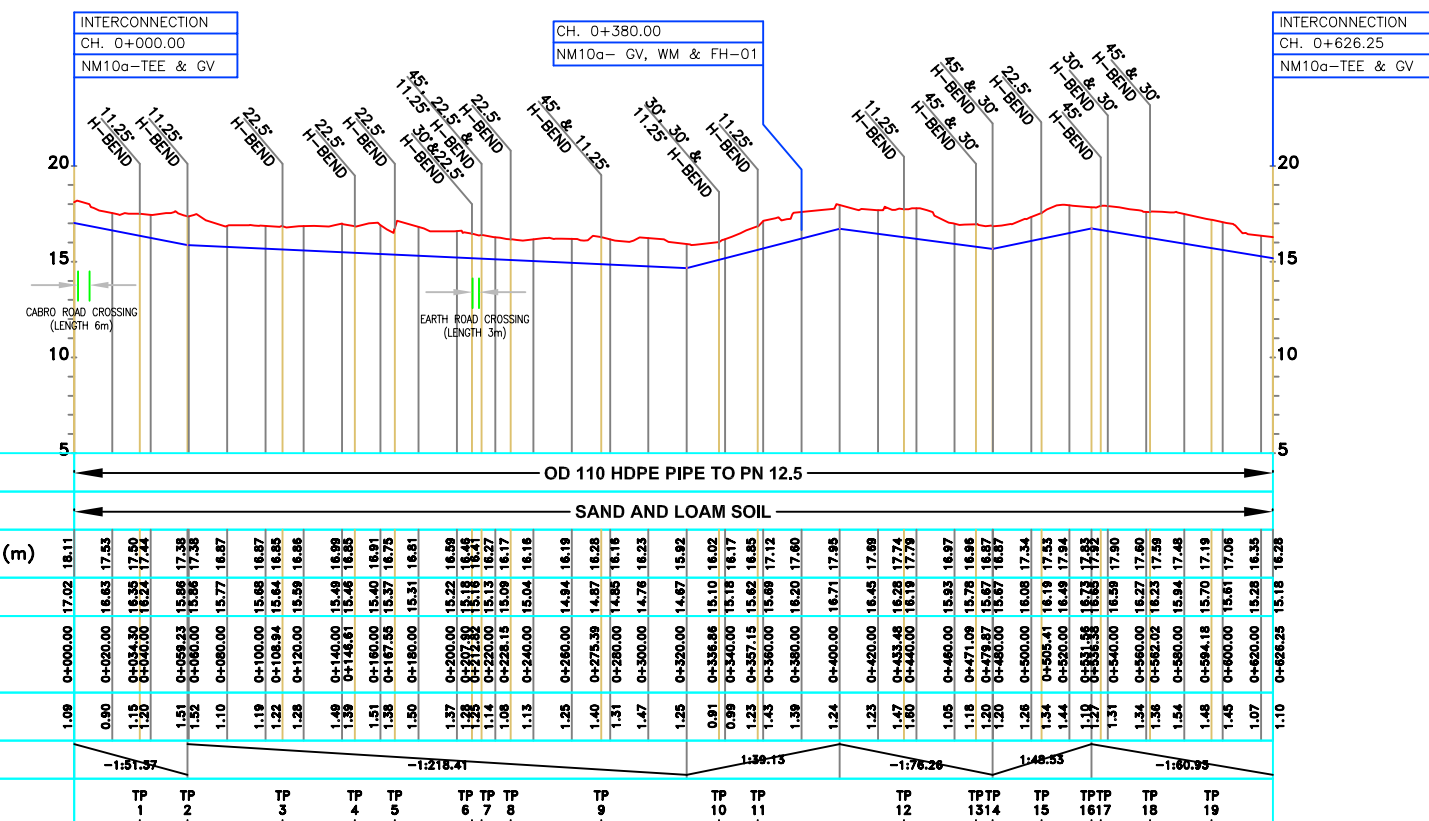
Designed by:	E.M.M	Drawn by:	P.G.M
Checked by:	E.I.M	Approved by:	R.S.R
Scale:	H- 1:4000, V- 1:400	Date:	APRIL 2020
DRG No.	M410/MO/NM/NM09/02	REV.	0



PLAN


- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674,00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

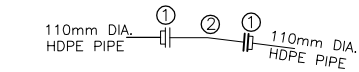
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM10a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+626.25)
 SHEET 1 OF 2**

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM10a/01	REV. 0

DETAIL CH. 0+034.30, 0+059.23, 0+357.15 & 0+433.48
LINE NM10a - 11.25° H.BEND

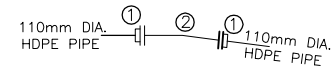


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+108.94, 0+146.61, 0+167.55, 0+228.15 & 0+505.41
LINE NM10a - 22.5° H.BEND

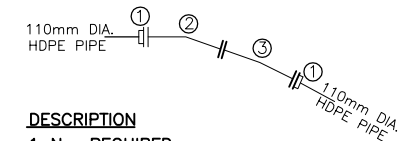


DESCRIPTION

5 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+207.90
LINE NM10a - 30° & 22.5° H.BEND

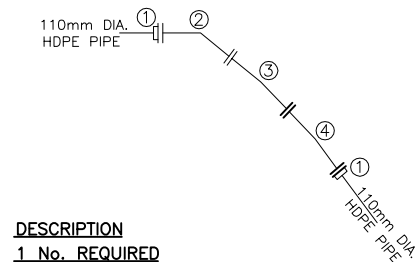


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+212.82
LINE NM10a - 45°, 22.5° & 11.25° H.BEND

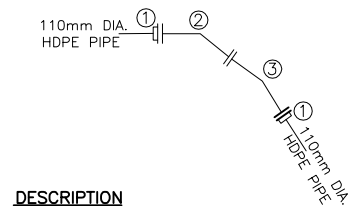


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ④ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+275.39
LINE NM10a - 45° & 11.25° H.BEND

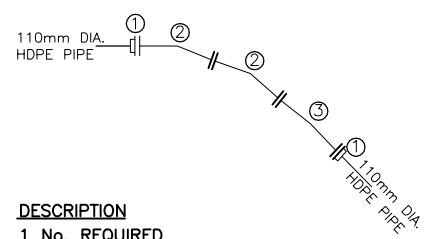


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+336.86
LINE NM10a - 30°, 30° & 11.25° H.BEND

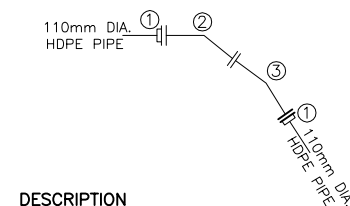


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+471.09, 0+479.87 & 0+562.02
LINE NM10a - 45° & 30° H.BEND

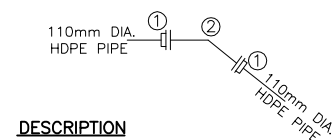


DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+531.56
LINE NM10a - 45° H.BEND

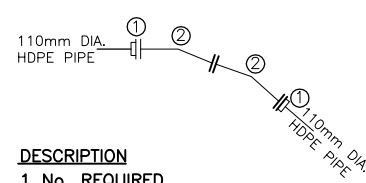


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+536.38
LINE NM10a - 30° & 30° H.BEND

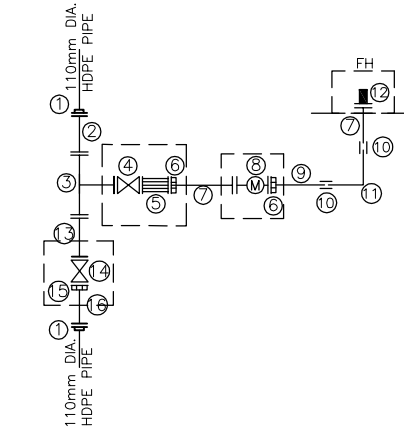


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+380.00
LINE NM10a - GV, WM & FH - 01

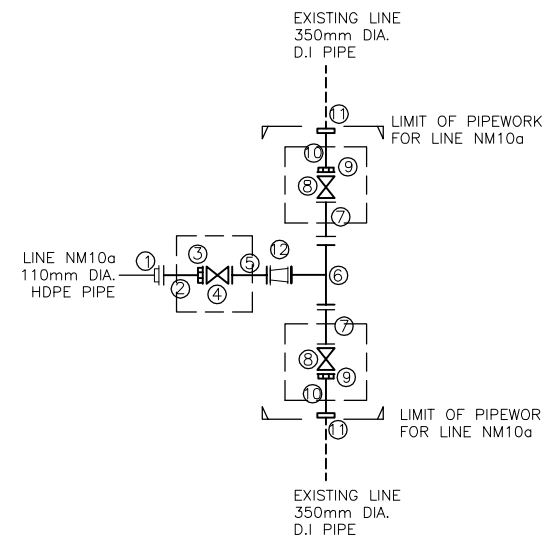


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+626.25
LINE NM10a - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑨ 2 Nos. 350mm DIA. V.J FLANGE ADAPTOR
- ⑩ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 350mm DIA. V.J STEPPED COUPLING
- ⑫ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC REDUCER

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+000.00, SEE DRG. NO. M410/M0/NM/NM11/05 AT CHAINAGE 0+890.50

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
D.I.	DUCTILE IRON
[]	PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

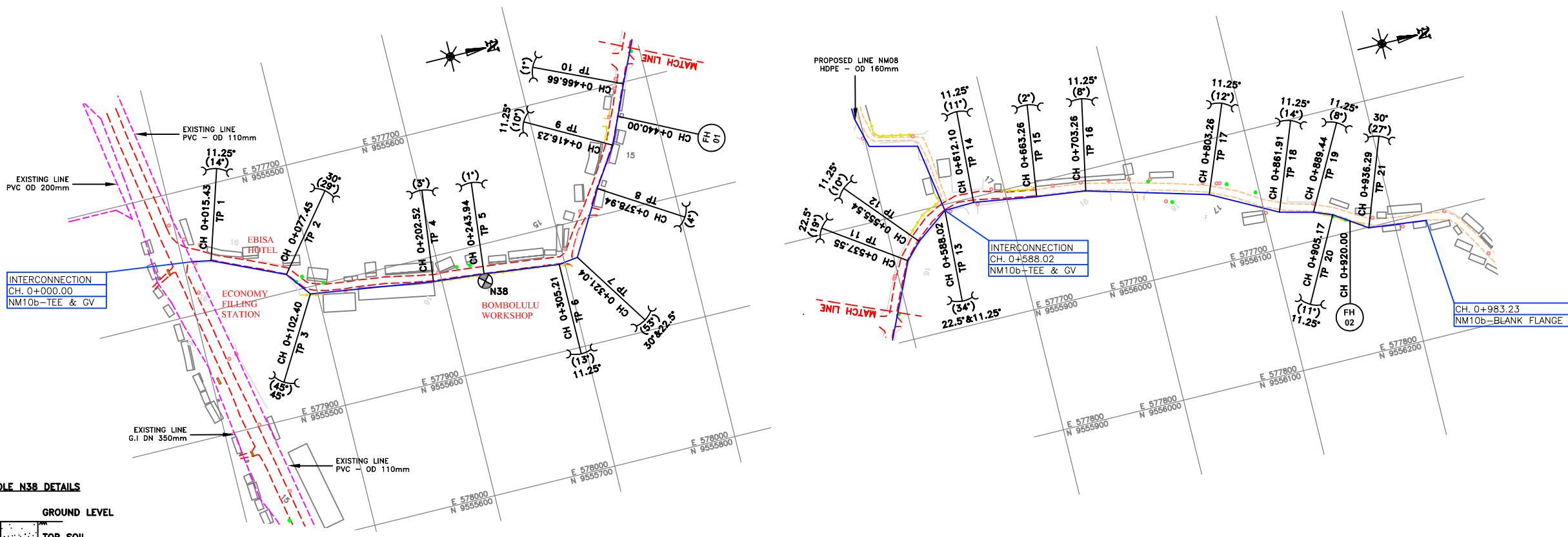
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

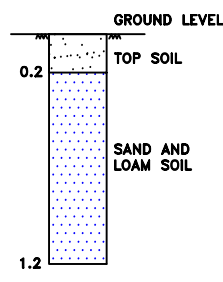
LINE NM10a FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM10a/02	REV. 0

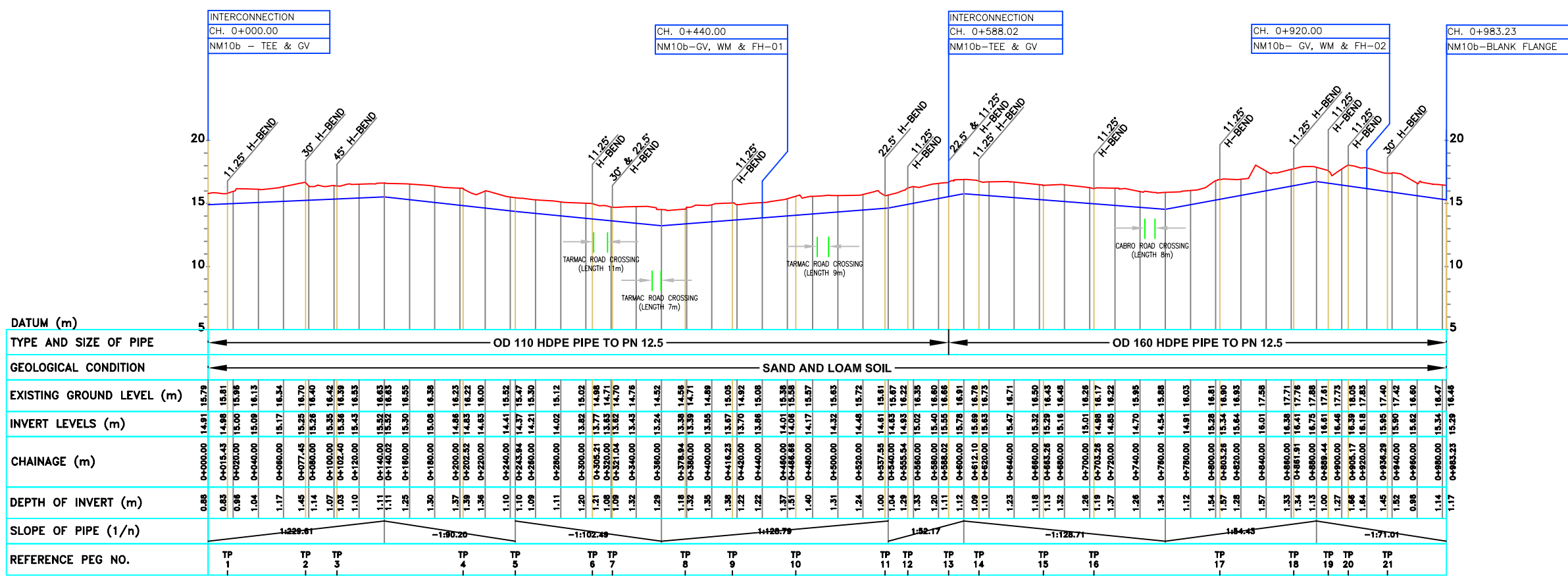


PLAN

TRIAL HOLE N38 DETAILS



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM10b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+983.23)
 SHEET 1 OF 2**

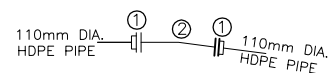
Designed by: T.K.N | Drawn by: V.G.K

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. **M410/M0/NM/NM10b/01** | REV. 0

DETAIL CH. 0+015.43, 0+305.21, 0+416.23 & 0+555.54
LINE NM10b - 11.25° H.BEND

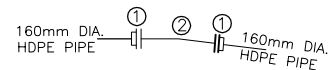


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+612.10, 0+703.26, 0+803.26, 0+861.91, 0+889.44 & 0+905.17
LINE NM10b - 11.25° H.BEND

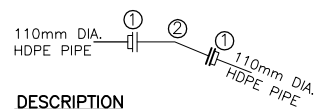


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+077.45
LINE NM10b - 30° H.BEND

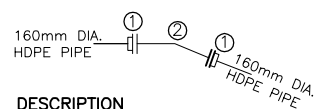


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+936.29
LINE NM10b - 30° H.BEND

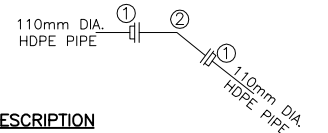


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+102.40
LINE NM10b - 45° H.BEND

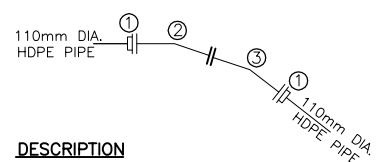


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+321.04
LINE NM10b - 30° & 22.5° H.BEND

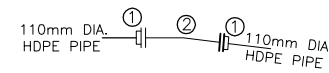


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+537.55
LINE NM10b - 22.5° H.BEND

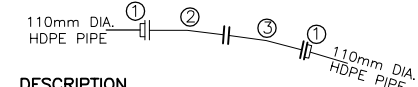


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+588.02
LINE NM10b - 22.5° & 11.25° H.BEND

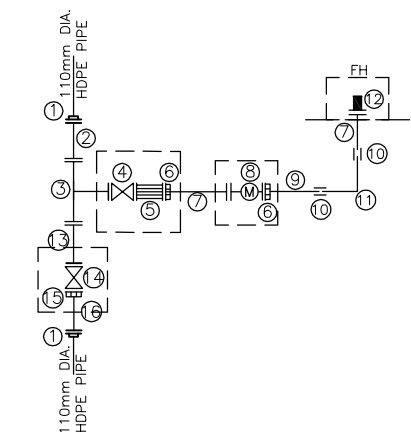


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+440.00
LINE NM10b - GV, WM & FH - 01

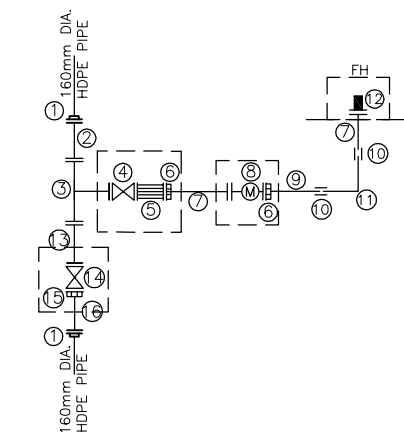


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+920.00
LINE NM10b - GV, WM & FH - 02

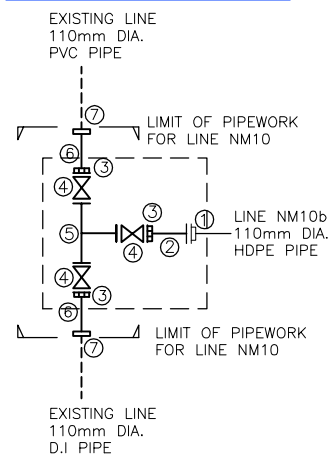


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+000.00
LINE NM10b - INTERCONNECTION

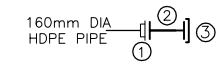


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 2 Nos. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 2 Nos. 100mm DIA. VIKING JOHNSON STEPPED COUPLING

DETAIL CH. 0+983.23
NM10b - BLANK FLANGE



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 160mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 150mm DIA. BLANK FLANGE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+588.02, SEE DRG. NO. M410/M0/NM/NM10b/02 AT CHAINAGE 0+673.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
D.I.	DUCTILE IRON
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

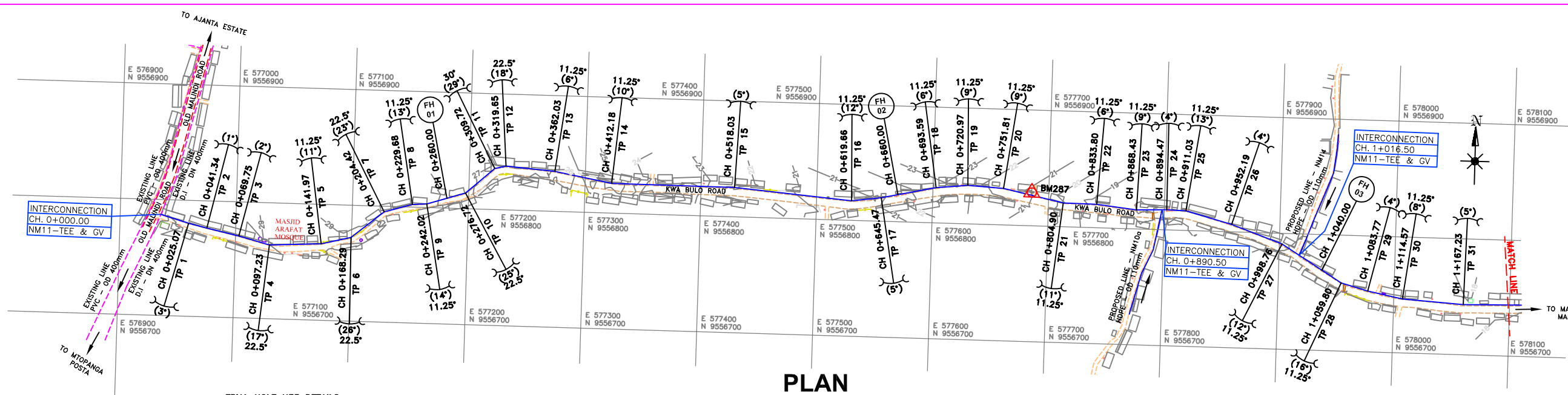
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

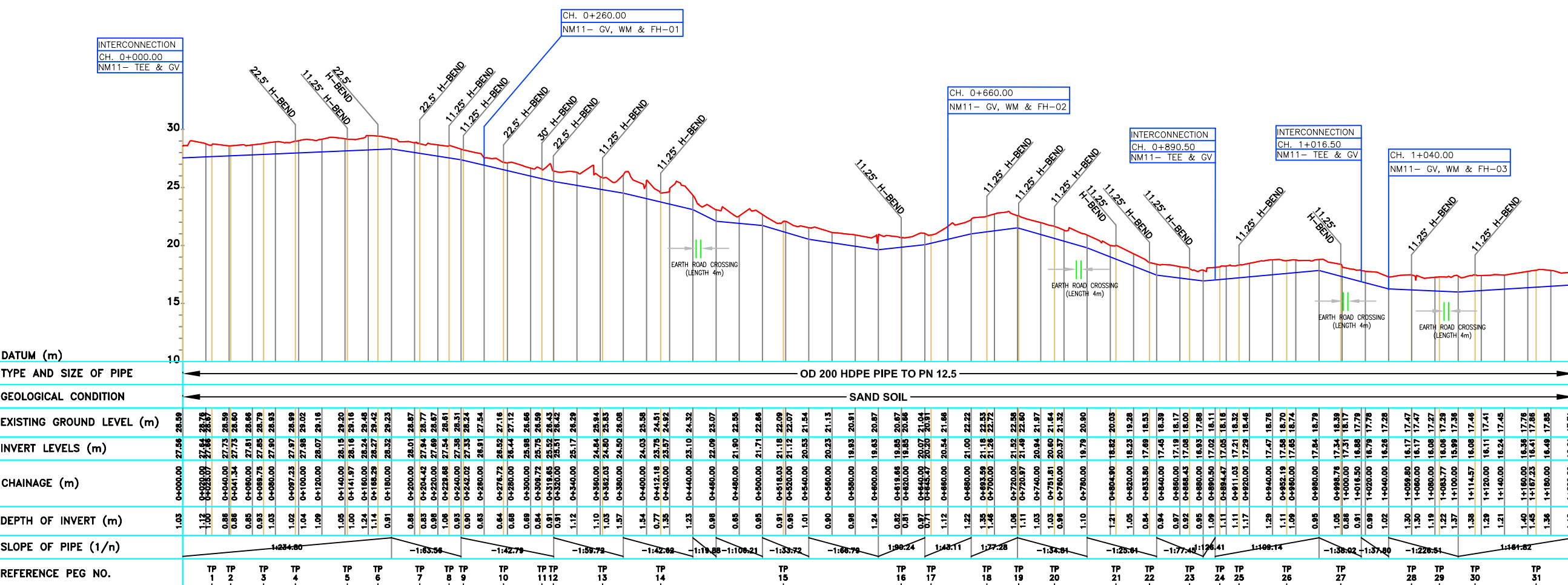
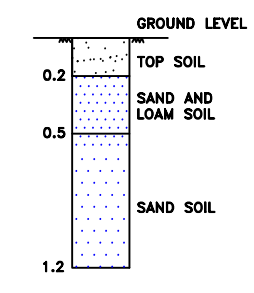
DRAWING TITLE:
LINE NM10b FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM10b/02	REV. 0



PLAN

TRIAL HOLE N33 DETAILS



LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - THE SURVEY WAS BASED ON THE DATUM BM287 WITH THE FOLLOWING COORDINATES AND ELEVATION.
- | BENCHMARK REF. NO. | EASTING | NORTHING | ELEVATION |
|--------------------|------------|--------------|-----------|
| BM287 | 577,655.52 | 9,556,628.83 | 21.10 |
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)

DATE	REVISIONS	BY	CHECKED	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

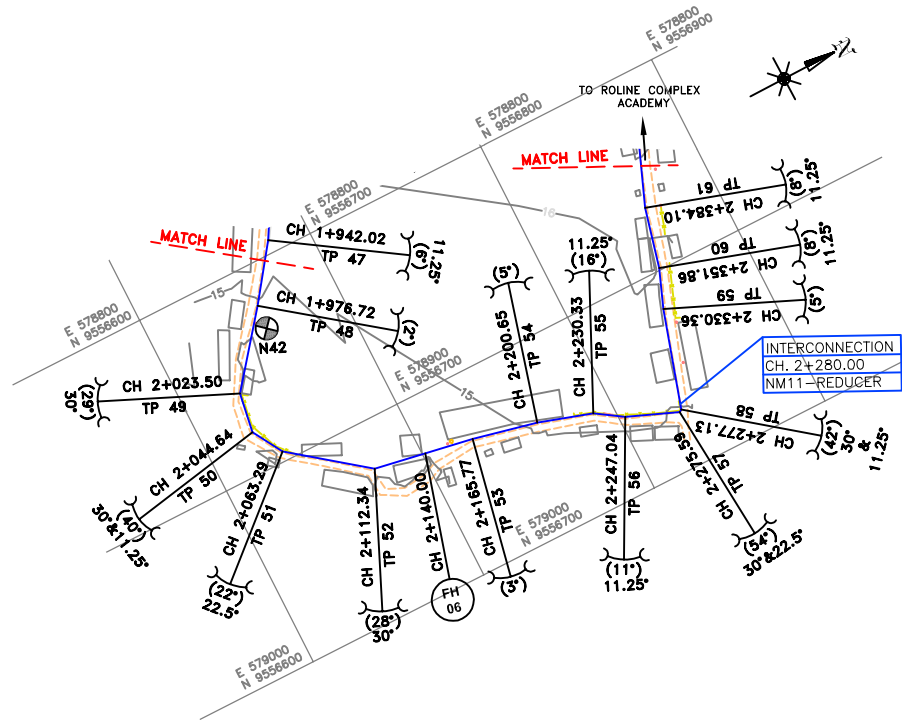
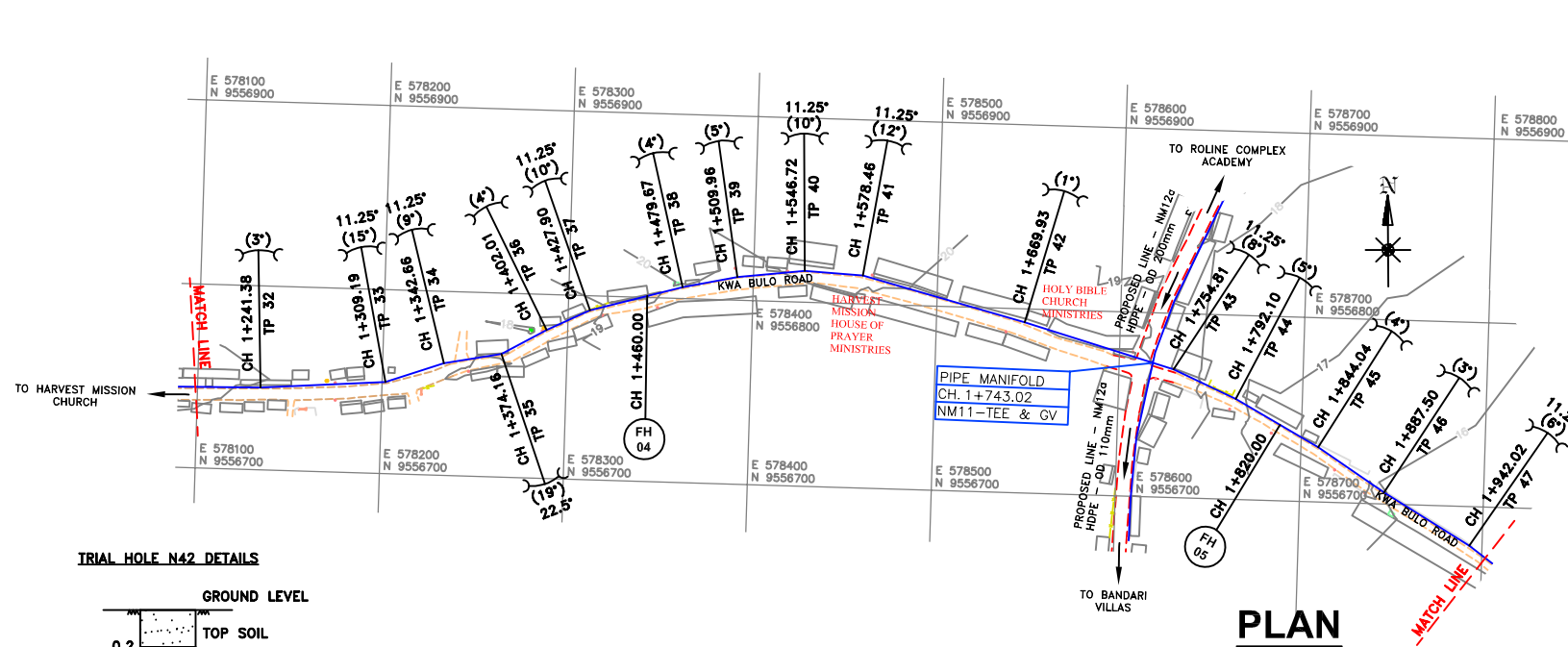
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

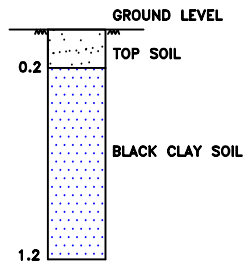
DRAWING TITLE:
**LINE NM11
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 6**

Designed by: T.K.N Drawn by: V.G.K
 Checked by: E.I.M Approved by: R.S.R
 Scale: H-1:4000, V-1:400 Date: APRIL 2020
 DRG No. M410/M0/NM/NM11/01 REV. 0



PLAN

TRIAL HOLE N42 DETAILS

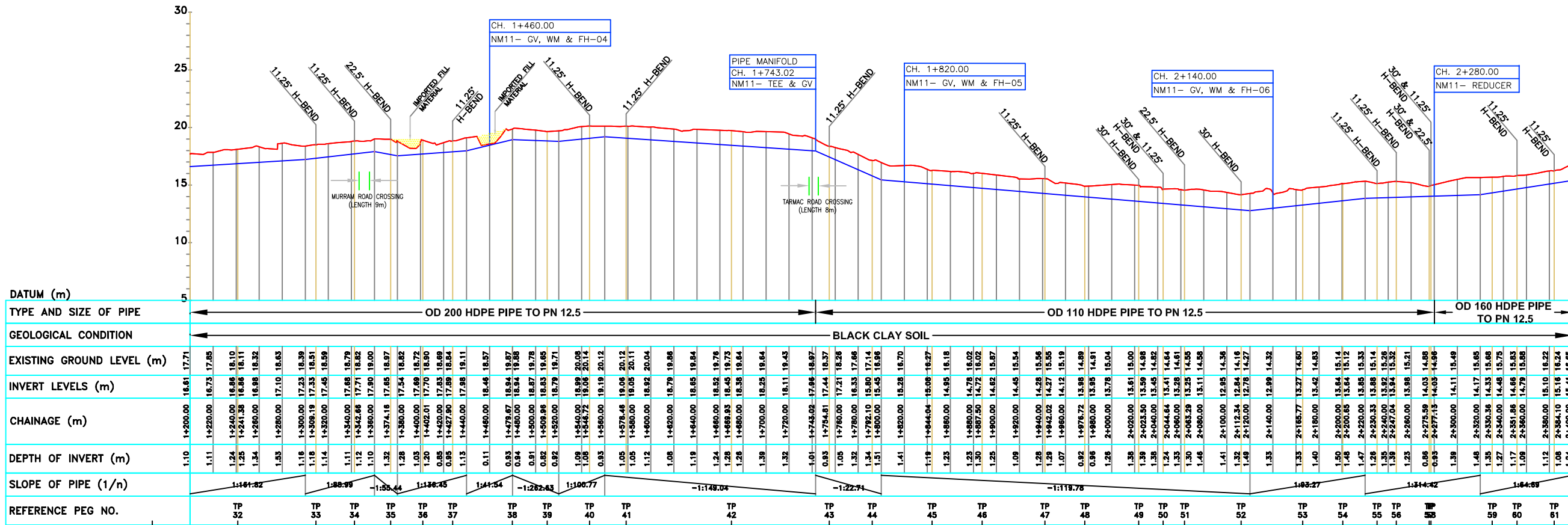


NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GATE VALVE
- FIRE HYDRANT
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL



LONGITUDINAL SECTION

REVISIONS			
NO.	DESCRIPTION	DATE	BY

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

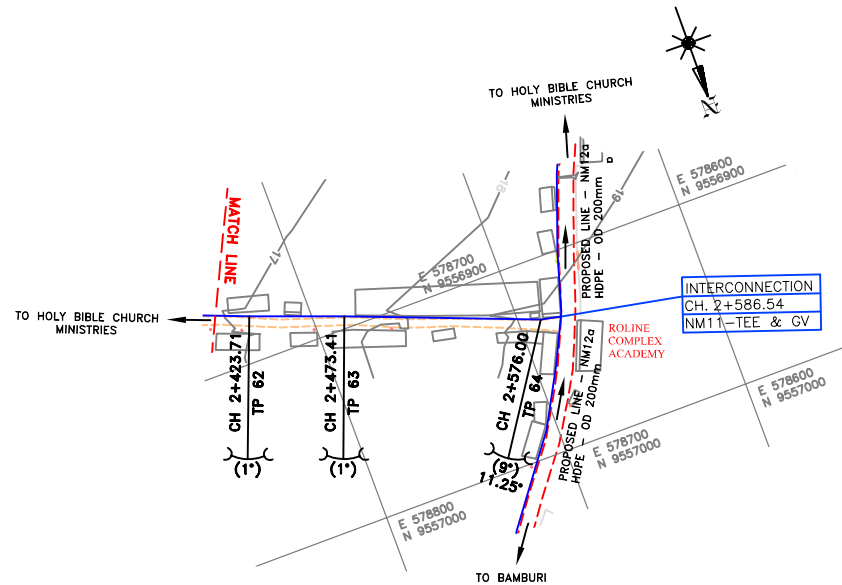
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

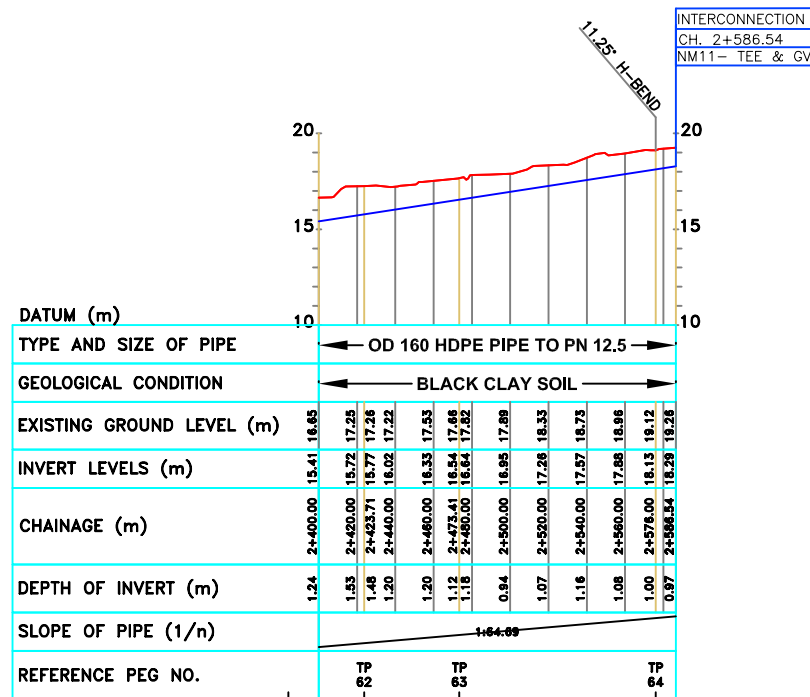
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM11
 PLAN & LONGITUDINAL SECTION
 (CH 1+200.00 - 2+400.00)
 SHEET 2 OF 6**

Designed by: T.K.N | Drawn by: V.G.K
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/M0/NM/11/02** | REV. 0



PLAN



LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

DATE	BY	CHECKED	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B PATEL (MIBP) LIMITED
 P.O BOX 48674,00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:
**LINE NM11
 PLAN & LONGITUDINAL SECTION
 (CH 2+400.00 - 2+586.54)
 SHEET 3 OF 6**

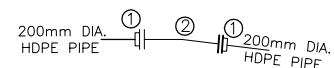
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. M410/M0/NM/NM11/03 **REV. 0**

DETAIL CH. 0+097.23, 0+168.29, 0+204.42, 0+276.72, 0+319.65 & 1+374.16
LINE NM11 - 22.5° H.BEND

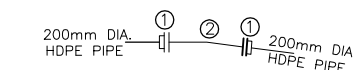


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+141.97, 0+229.68, 0+242.02, 0+362.03, 0+412.18, 0+619.66, 0+693.59, 0+720.97, 0+751.81, 0+804.90, 0+833.80, 0+868.43, 0+911.03, 0+998.76, 1+059.80, 1+114.57, 1+309.19, 1+342.66, 1+427.90, 1+546.72 & 1+578.46
LINE NM11 - 11.25° H.BEND

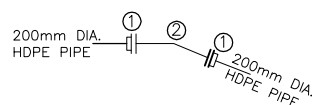


DESCRIPTION

21 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+309.72
LINE NM11 - 30° H.BEND

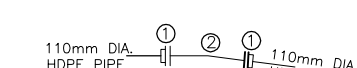


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 1+754.81, 1+942.02, 2+230.33 & 2+247.04
LINE NM11 - 11.25° H.BEND

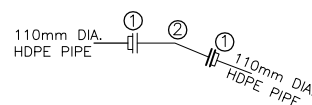


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 2+023.50 & 2+112.34
LINE NM11 - 30° H.BEND

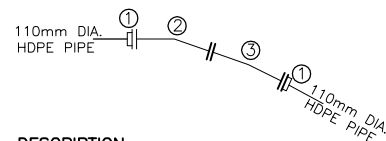


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 2+044.64 & 2+277.13
LINE NM11 - 30° & 11.25° H.BEND

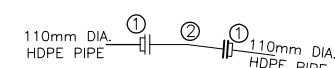


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 2+063.29
LINE NM11 - 22.5° H.BEND

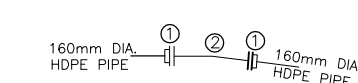


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 2+351.86, 2+384.10 & 2+576.00
LINE NM11 - 11.25° H.BEND

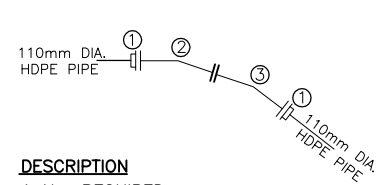


DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 2+275.59
LINE NM11 - 30° & 22.5° H.BEND



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J. VIKING JOHNSON

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM11 FITTING DETAILS SHEET 4 OF 6

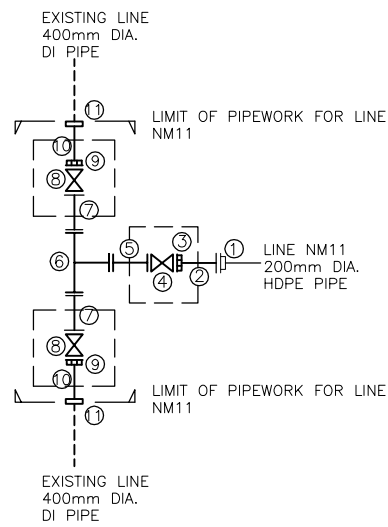
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. M410/M0/NM/NM11/04 REV. 0

DETAIL CH. 0+000.00
LINE NM11 - INTERCONNECTION

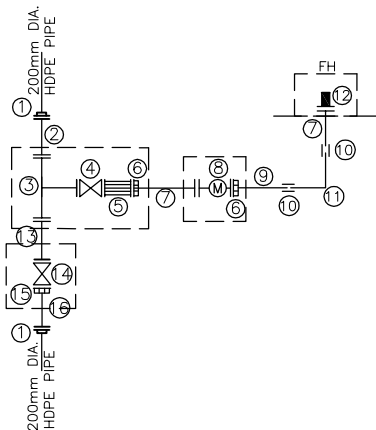


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 400x200mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ⑨ 2 Nos. 400mm DIA. V.J FLANGE ADAPTOR
- ⑩ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 400mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+260.00, 0+660.00, 1+040.00, 1+460.00
LINE NM11 - GV, WM & FH - 01, 02, 03 & 04

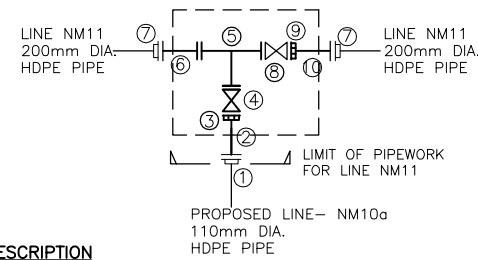


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+890.50
LINE NM11 - INTERCONNECTION

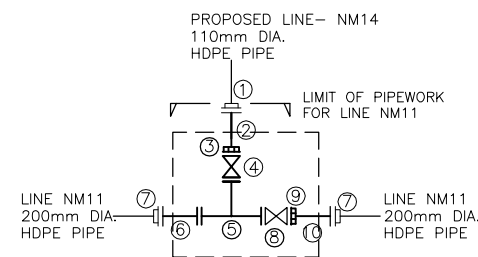


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑦ 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ⑧ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG

DETAIL CH. 1+016.50
LINE NM11 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑦ 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ⑧ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
D.I.	DUCTILE IRON
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

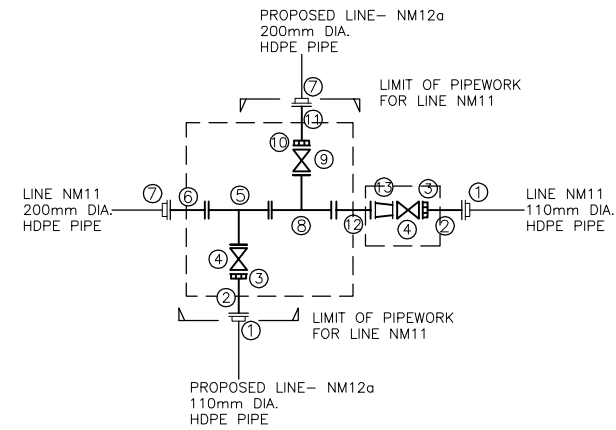
CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM11 FITTING DETAILS SHEET 5 OF 6

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM11/05	REV. 0

DETAIL CH. 1+743.02
LINE NM11 - PIPE MANIFOLD

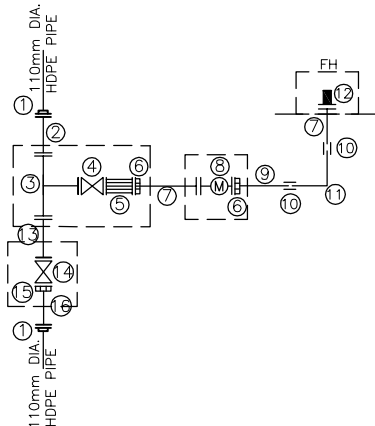


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑦ 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ⑧ 1 No. 200x200mm DIA. ALL FLANGED FERROUS TEE
- ⑨ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑩ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑪ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑫ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑬ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER

DETAIL CH. 1+820.00 & 2+140.00
LINE NM11 - GV, WM & FH - 05 & 06

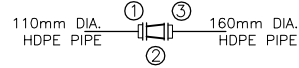


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 2+280.00
LINE NM11 - REDUCER

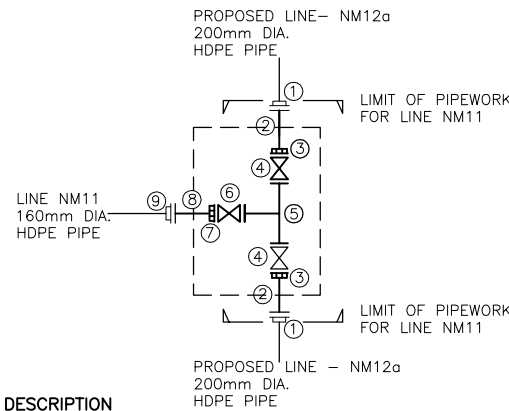


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150x100mm DIA. ALL FLANGED FERROUS CONCENTRIC REDUCER
- ③ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 2+586.54
LINE NM11 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 200mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x150mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑦ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑧ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑨ 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
D.I.	DUCTILE IRON
[]	PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

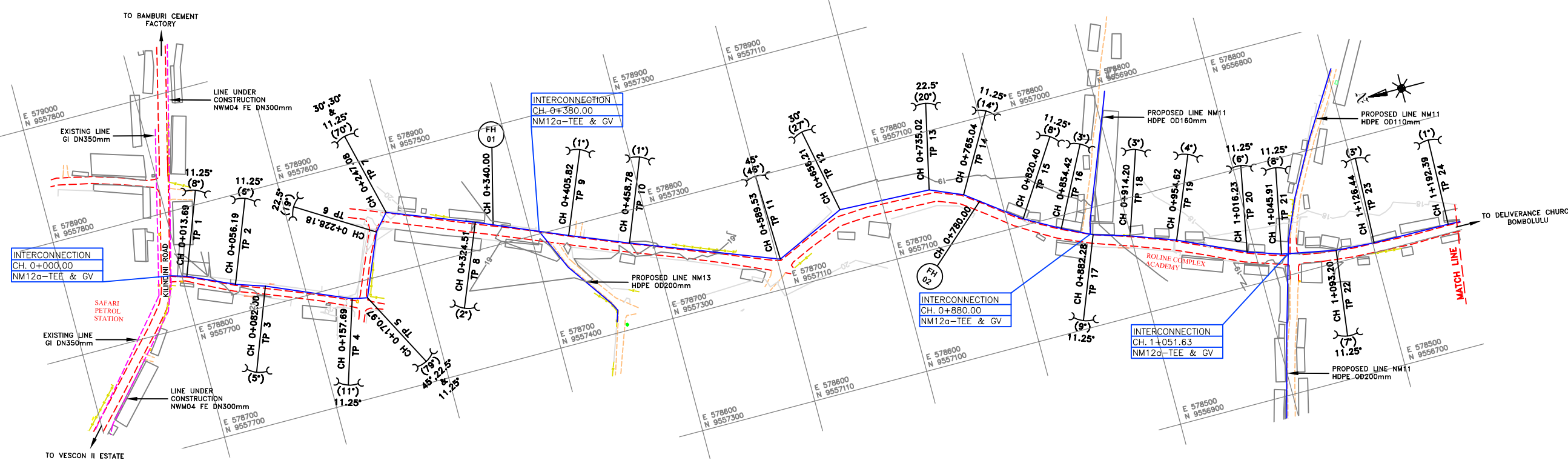
CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM11 FITTING DETAILS

SHEET 6 OF 6

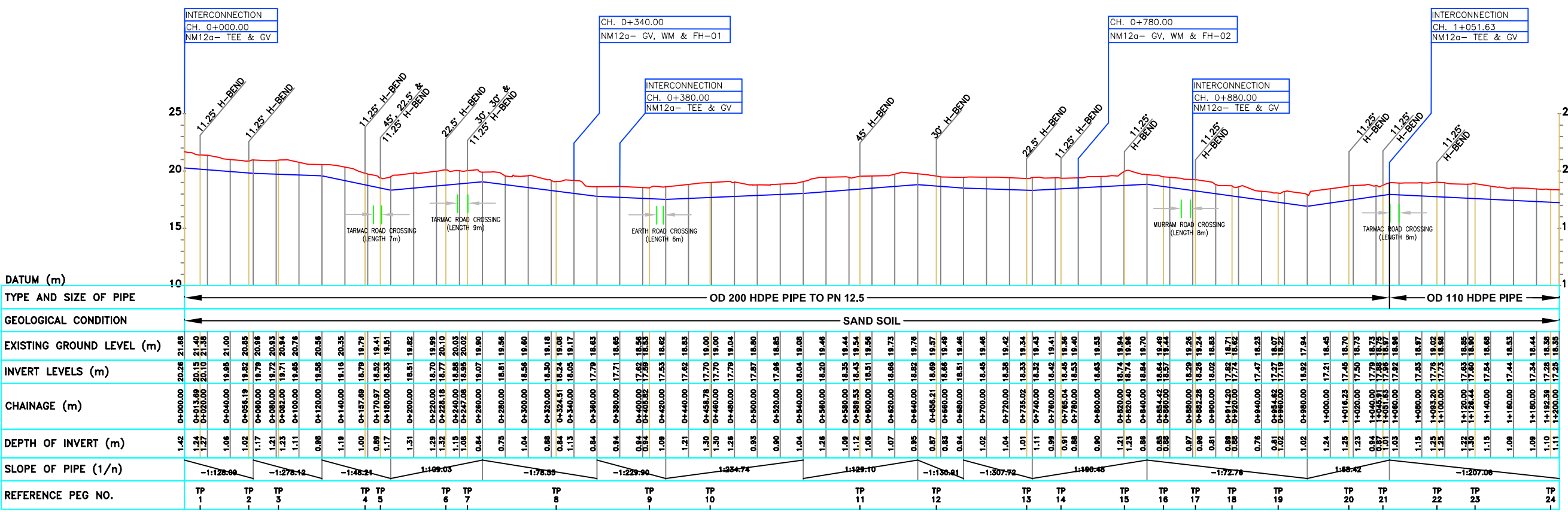
Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM11/06	REV. 0



PLAN

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



LONGITUDINAL SECTION

REVISIONS				
NO.	BY	DATE	APPROVED	REASON

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

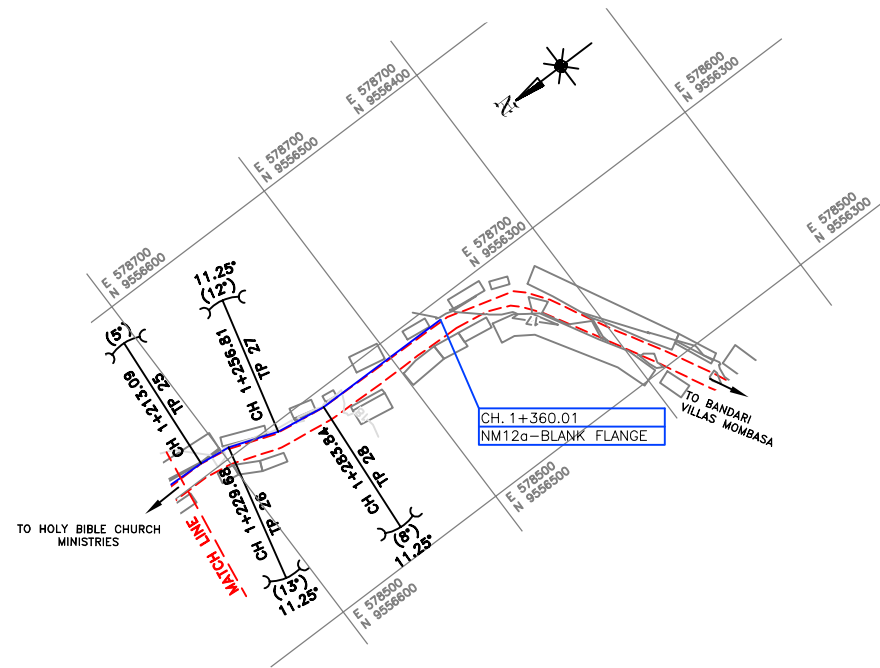
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

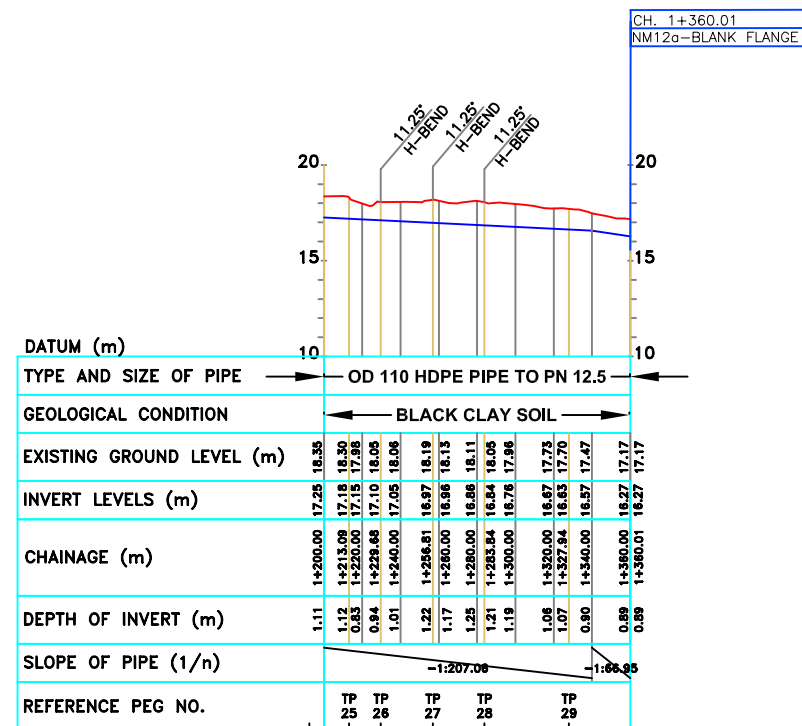
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM12a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 3**

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM12a/01	REV. 0



PLAN



LONGITUDINAL SECTION

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 --- CONTOURS, 1m INTERVAL
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- ⊗ TRIAL HOLE
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GV GATE VALVE
- FH FIRE HYDRANT
- 1/n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

**LINE NM12a
PLAN & LONGITUDINAL SECTION
(CH 1+200.00 - 1+360.01)
SHEET 2 OF 3**

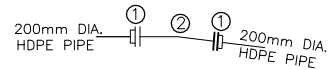
Designed by: T.K.N | Drawn by: V.G.K

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

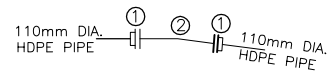
DRG No. **M410/M0/NM/NM12a/02** | REV. 0

DETAIL CH. 0+013.69, 0+056.19, 0+157.69, 0+765.04, 0+820.40, 0+882.28, 1+016.23 & 1+045.91
LINE NM12a - 11.25° H.BEND



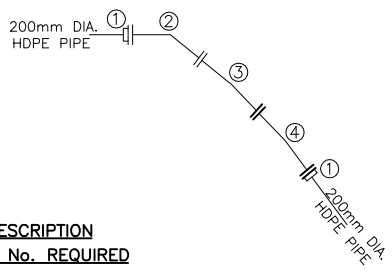
DESCRIPTION
8 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 1+093.20, 1+229.68, 1+256.81 & 1+283.84
LINE NM12a - 11.25° H.BEND



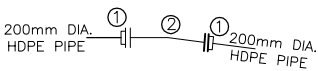
DESCRIPTION
4 Nos. REQUIRED
① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+170.97
LINE NM12a - 45°, 22.5° & 11.25° H.BEND



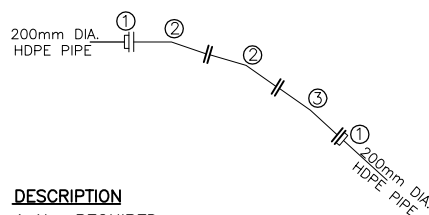
DESCRIPTION
1 No. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND
③ 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND
④ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+228.18 & 0+735.02
LINE NM12a - 22.5° H.BEND



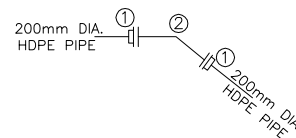
DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+247.08
LINE NM12a - 30°, 30° & 11.25° H.BEND



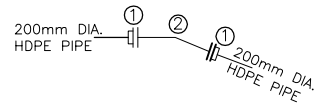
DESCRIPTION
1 No. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 200mm DIA. ALL FLANGED FERROUS 30° BEND
③ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+589.53
LINE NM12a - 45° H.BEND



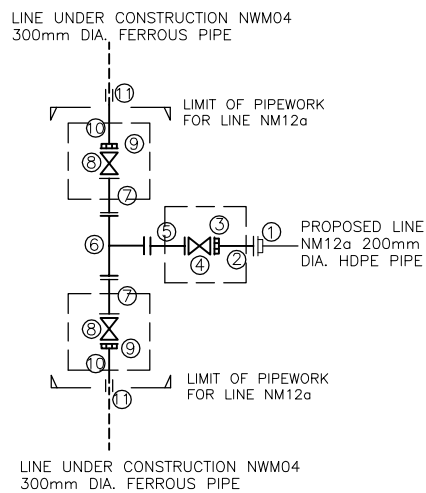
DESCRIPTION
1 No. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+656.21
LINE NM12a - 30° H.BEND



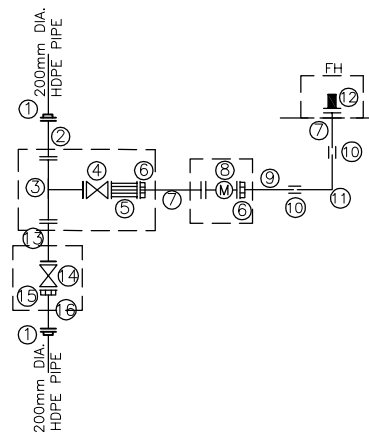
DESCRIPTION
1 No. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+000.00
LINE NM12a - INTERCONNECTION



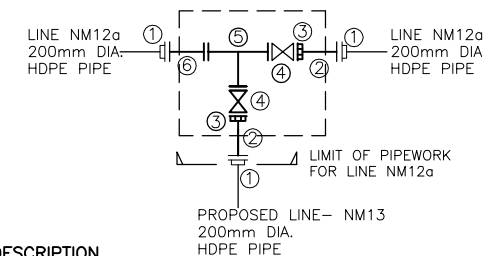
DESCRIPTION
1 No. REQUIRED
① 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
③ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
⑤ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
⑥ 1 No. 300x200mm DIA. ALL FLANGED FERROUS TEE
⑦ 2 Nos. 300mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
⑧ 2 Nos. 300mm DIA. ALL FLANGED GATE VALVE
⑨ 2 Nos. 300mm DIA. V.J FLANGE ADAPTOR
⑩ 2 Nos. 300mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
⑪ 2 Nos. 300mm DIA. V.J COUPLING

DETAIL CH. 0+340.00 & 0+780.00
LINE NM12a - GV, WM & FH - 01 & 02



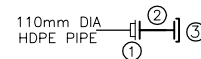
DESCRIPTION
2 Nos. REQUIRED
① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
③ 1 No. 200x80mm DIA. ALL FLANGED TEE
④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
⑩ 2 Nos. 80mm DIA. V.J. COUPLING
⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
⑫ 1 No. 80mm DIA. FIRE HYDRANT
⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+380.00
LINE NM12a - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED
① 3 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
② 2 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
③ 2 Nos. 200mm DIA. V.J FLANGE ADAPTOR
④ 2 Nos. 200mm DIA. ALL FLANGED GATE VALVE
⑤ 1 No. 200x200mm DIA. ALL FLANGED FERROUS TEE
⑥ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

DETAIL CH. 1+360.01
NM12 - BLANK FLANGE




DESCRIPTION
1 No. REQUIRED
① 1 No. 110mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
③ 1 No. 100mm DIA. BLANK FLANGE

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - FOR FITTING DETAILS AT CHAINAGE 0+880.00, SEE DRG. NO. M410/M0/NM11/06 ON LINE NM11 AT CHAINAGE 2+586.54
 - FOR FITTING DETAILS AT CHAINAGE 1+051.63 SEE DRG. NO. M410/M0/NM11/05 AT CHAINAGE 1+743.02

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:
 **COAST WATER WORKS DEVELOPMENT AGENCY**
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:
 **MIBP MANGAT I.B. PATEL (MIBP) LIMITED**
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

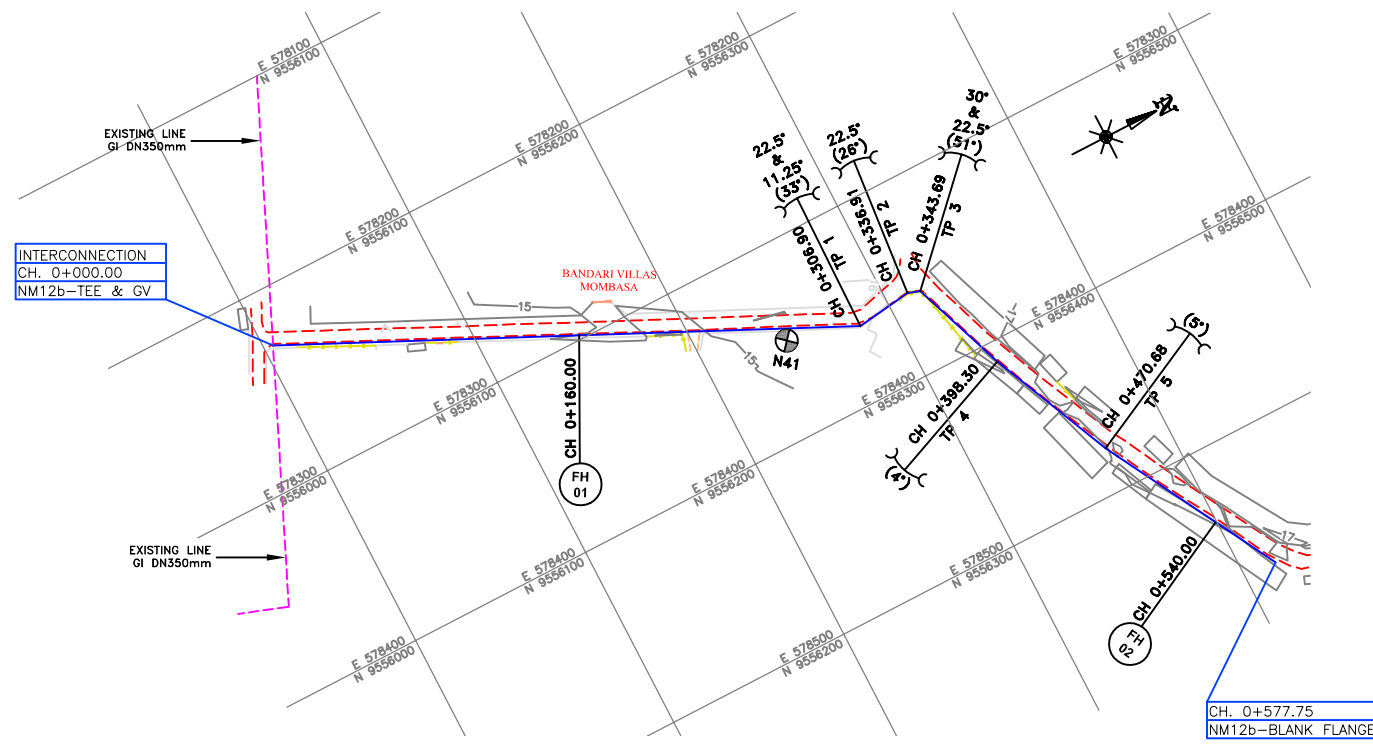
DRAWING TITLE:
**LINE NM12a
FITTING DETAILS
SHEET 3 OF 3**

Designed by: T.K.N Drawn by: V.G.K

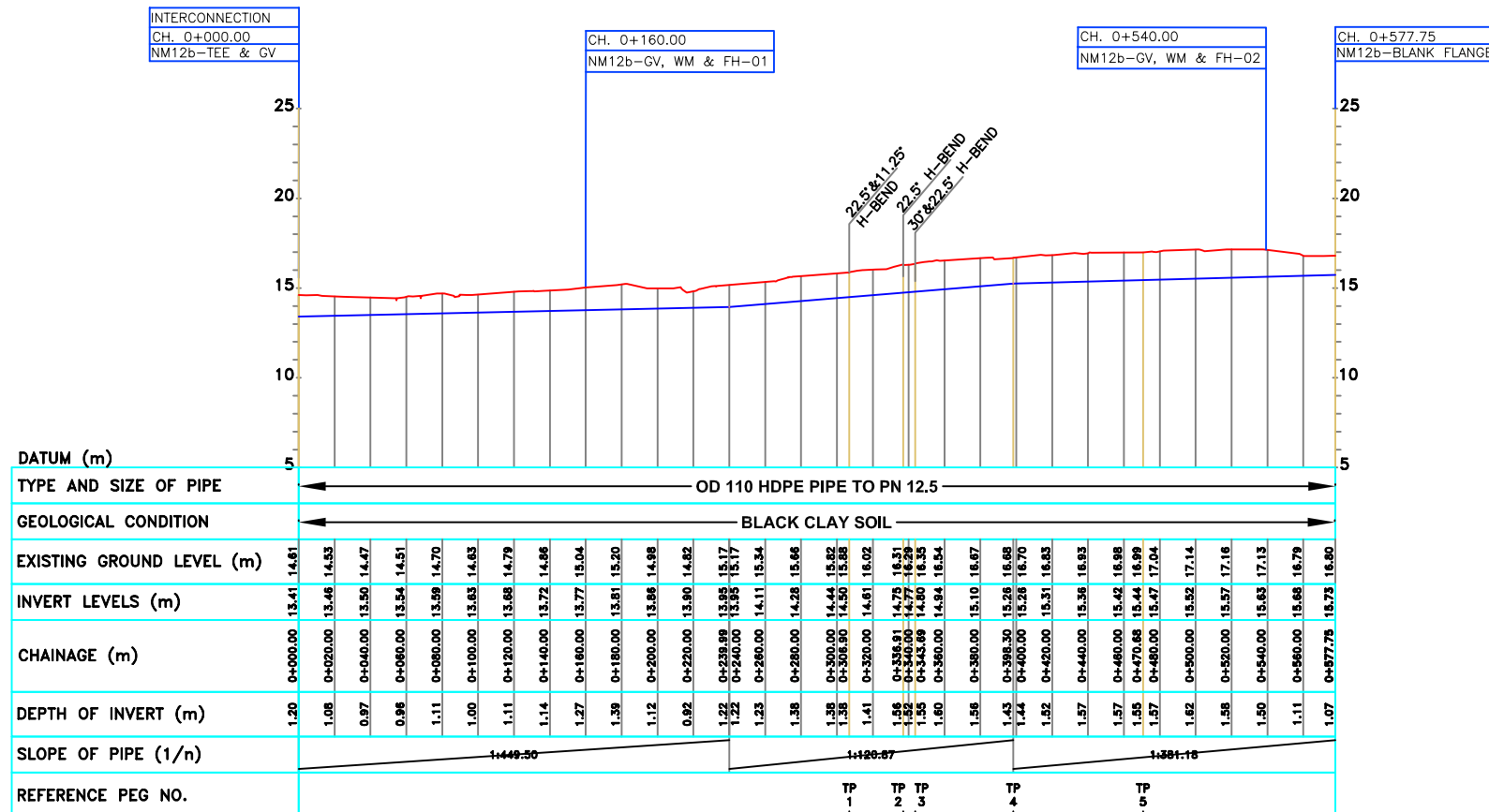
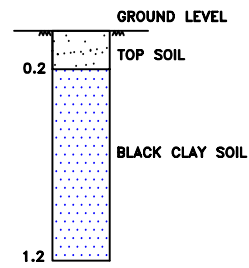
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM12a/03** REV. 0



TRIAL HOLE N41 DETAILS



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM12b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+577.75)
 SHEET 1 OF 2**

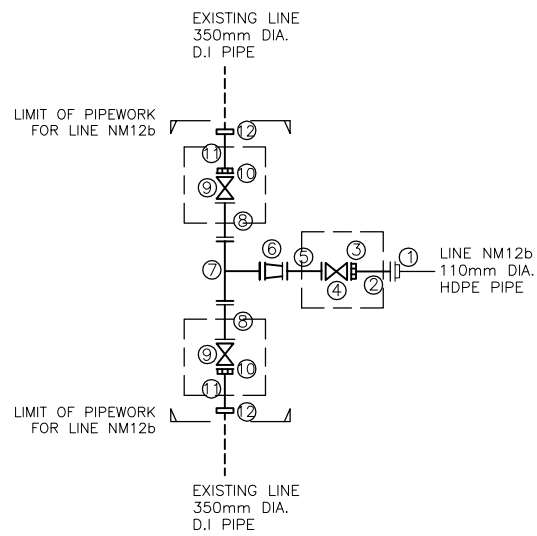
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM12b/01** REV. 0

DETAIL CH. 0+000.00
LINE NM12b - INTERCONNECTION

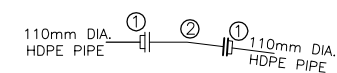


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 350mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 350mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+336.91
LINE NM12b - 22.5° H.BEND

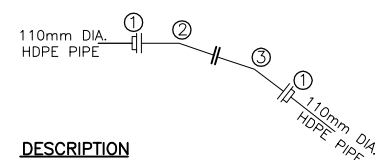


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+306.90
LINE NM12b - 22.5° & 11.25° H.BEND

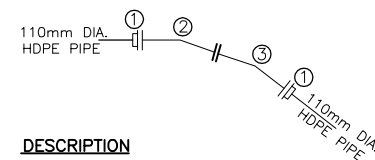


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+343.69
LINE NM12b - 30° & 22.5° H.BEND

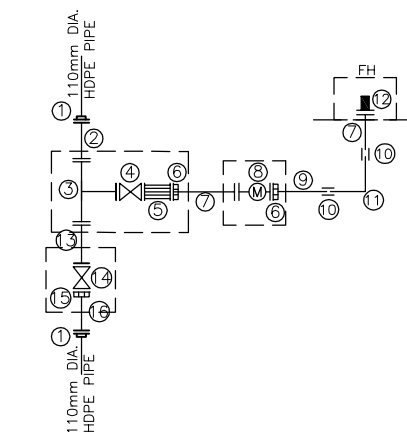


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+160.00 & 0+540.00
LINE NM12b - GV, WM & FH - 01 & 02

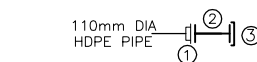


DESCRIPTION

2 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+577.75
NM12b - BLANK FLANGE



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- V.J. VIKING JOHNSON
- GV GATE VALVE
- FH FIRE HYDRANT
- WM WATER METER
- [] PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM12b FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

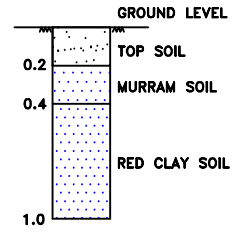
Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. M410/M0/NM/NM12b/02 REV. 0



PLAN

TRIAL HOLE N10 DETAILS



- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULTURT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - SV-01 SECTIONAL VALVE & No.
 - WO-01 WASHOUT VALVE & No.
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				
NO.	BY	DATE	APPROVED	
	CHECKED			
	CHECKED			
	CHECKED			
	CHECKED			
	CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

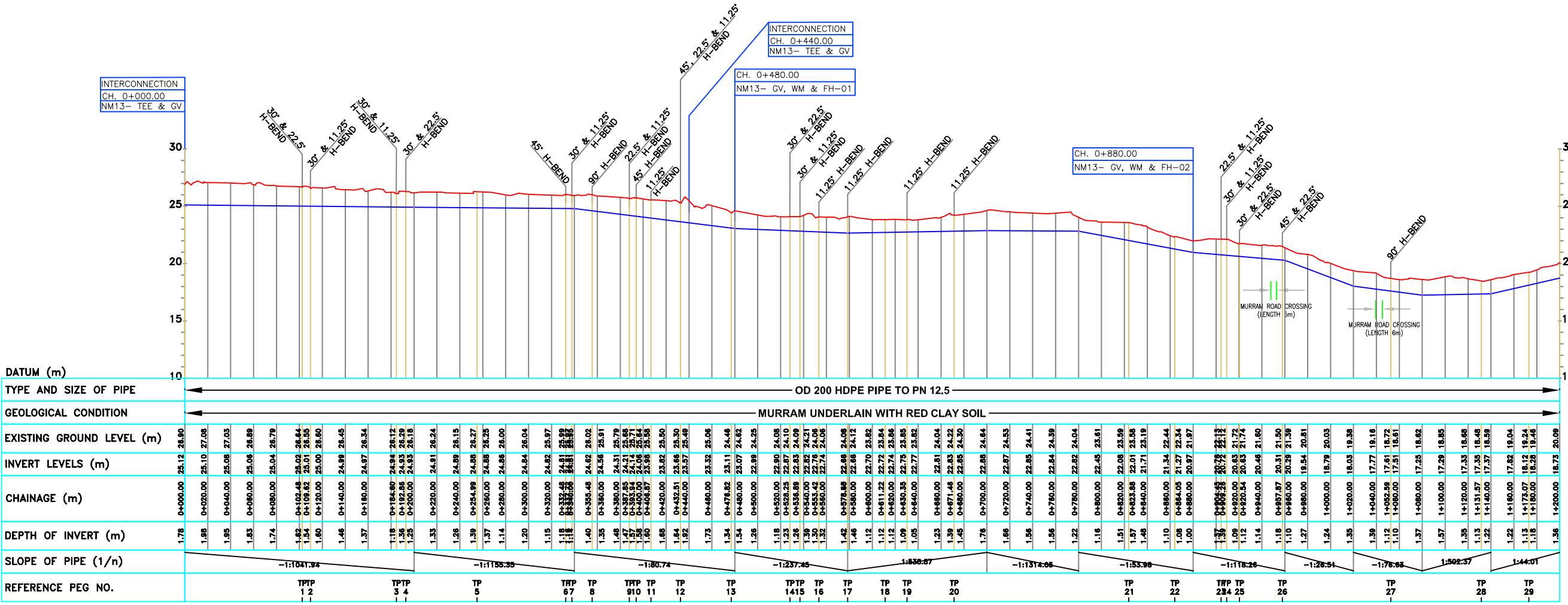
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

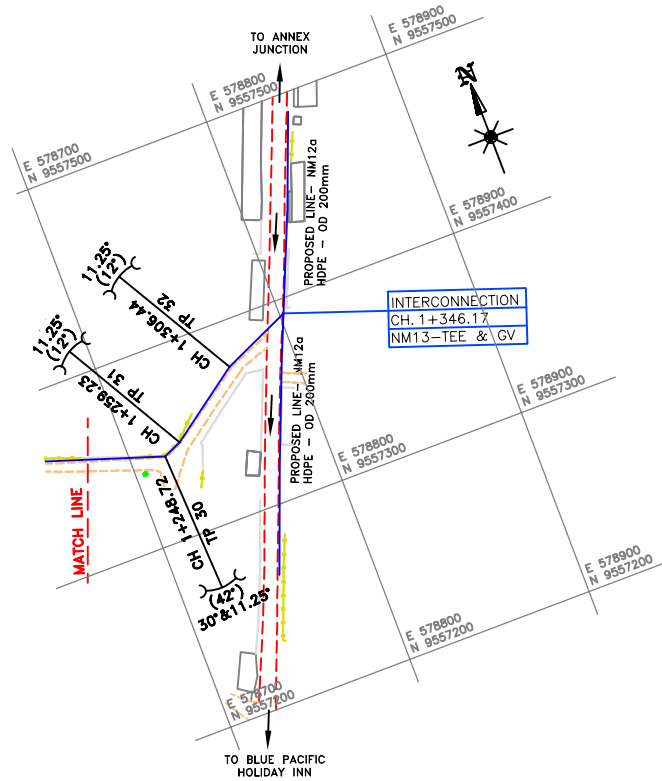
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM13 PLAN & LONGITUDINAL SECTION (CH 0+000.00 - 1+200.00) SHEET 1 OF 3

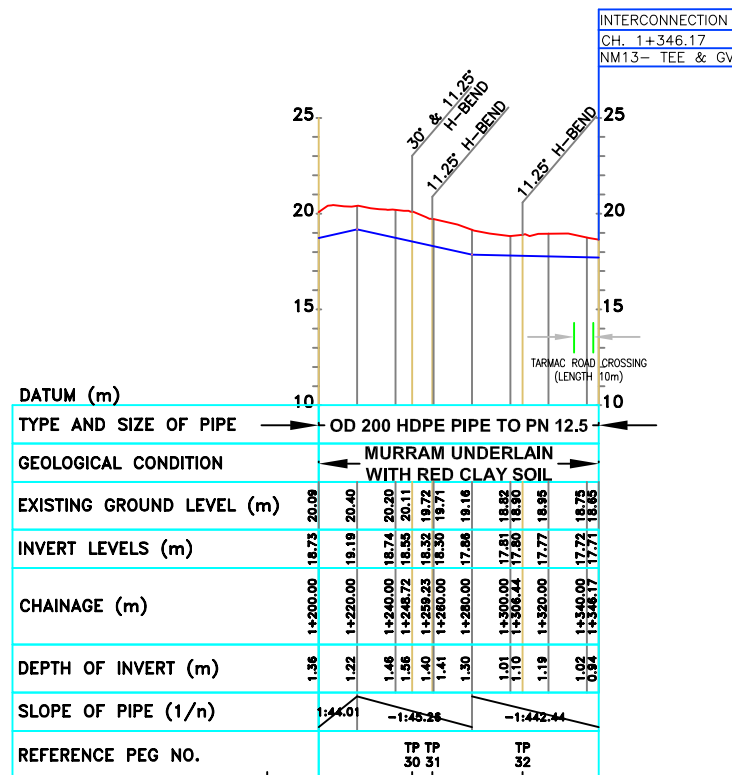
Designed by: T.K.N Drawn by: V.G.K
 Checked by: E.I.M Approved by: R.S.R
 Scale: H-1:4000, V-1:400 Date: APRIL 2020
 DRG No. **M410/M0/NM/NM13/01** REV. 0



LONGITUDINAL SECTION



PLAN



LONGITUDINAL SECTION

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- 14 --- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- ⊗ TRIAL HOLE
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GV GATE VALVE
- FH FIRE HYDRANT
- 1/n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM13
 PLAN & LONGITUDINAL SECTION
 (CH 1+200.00 - 1+346.17)
 SHEET 2 OF 3**

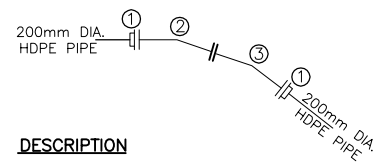
Designed by: T.K.N | Drawn by: V.G.K

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. **M410/M0/NM/NM13/02** | REV. 0

DETAIL CH. 0+102.48, 0+192.86, 0+528.25 & 0+920.54
LINE NM13 - 30° & 22.5° H.BEND

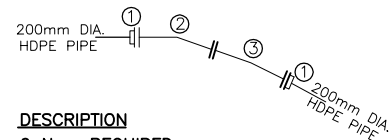


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+109.62, 0+184.60, 0+337.72, 0+536.89, 0+909.26 & 1+248.72
LINE NM13 - 30° & 11.25° H.BEND

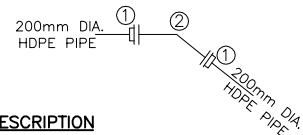


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+332.48 & 0+393.94
LINE NM13 - 45° H.BEND

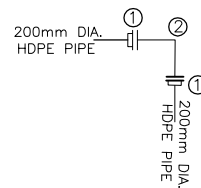


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+355.48 & 1+052.59
LINE NM13 - 90° H.BEND

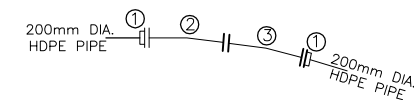


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 90° BEND

DETAIL CH. 0+387.85 & 0+904.45
LINE NM13 - 22.5° & 11.25° H.BEND

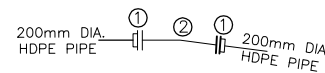


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+406.87, 0+553.42, 0+578.53, 0+630.35, 0+671.46, 1+259.23 & 1+306.44
LINE NM13 - 11.25° H.BEND

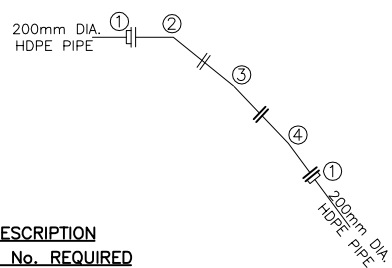


DESCRIPTION

7 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+432.51
LINE NM13 - 45°, 22.5° & 11.25° H.BEND

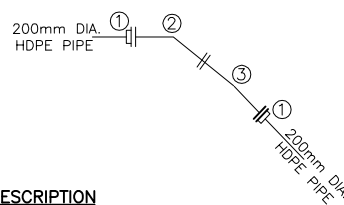


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ④ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+957.87
LINE NM13 - 45° & 22.5° H.BEND

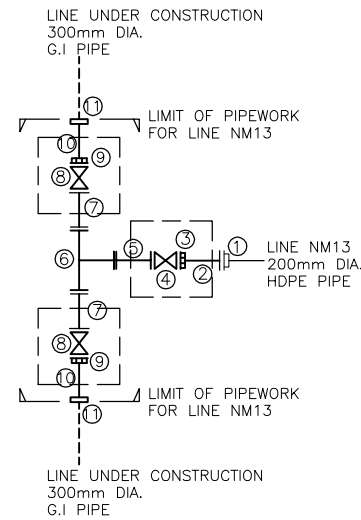


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+000.00
LINE NM13 - INTERCONNECTION

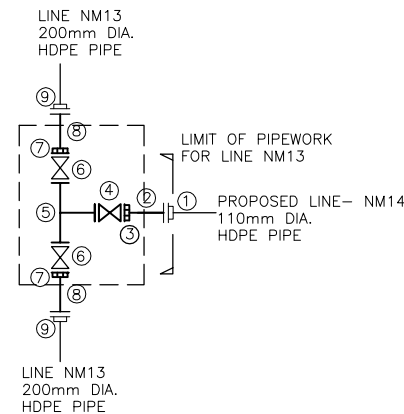


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 300x200mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 300mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 2 Nos. 300mm DIA. ALL FLANGED GATE VALVE
- ⑨ 2 Nos. 300mm DIA. V.J FLANGE ADAPTOR
- ⑩ 2 Nos. 300mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 300mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+440.00
LINE NM13 - INTERCONNECTION

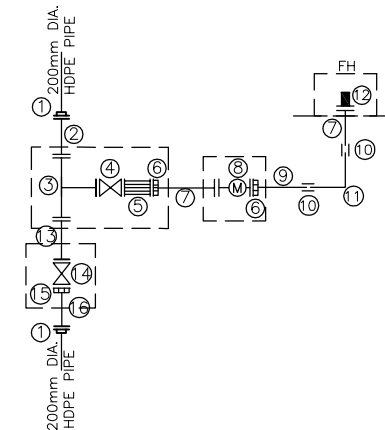


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 2 Nos. 200mm DIA. ALL FLANGED GATE VALVE
- ⑦ 2 Nos. 200mm DIA. V.J FLANGE ADAPTOR
- ⑧ 2 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 0.480.00 & 0+880.00
LINE NM13 - GV, WM & FH - 01 & 02



DESCRIPTION

2 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 1+346.17 SEE DRG. NO. M410/M0/NM/NM12a/04 AT CHAINAGE 0+380.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

LINE NM13 FITTING DETAILS

SHEET 3 OF 3

Designed by: T.K.N Drawn by: V.G.K

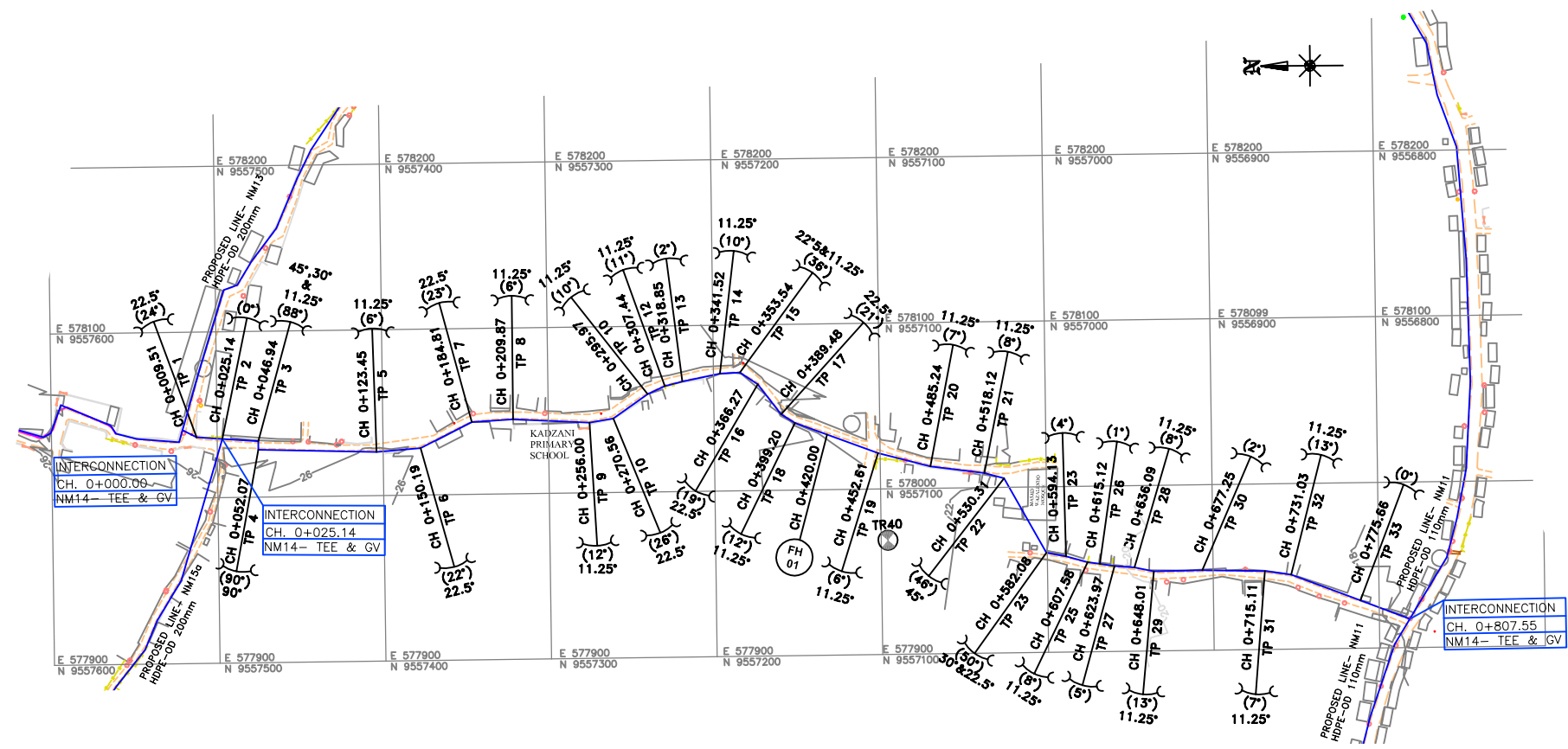
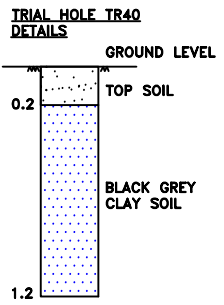
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

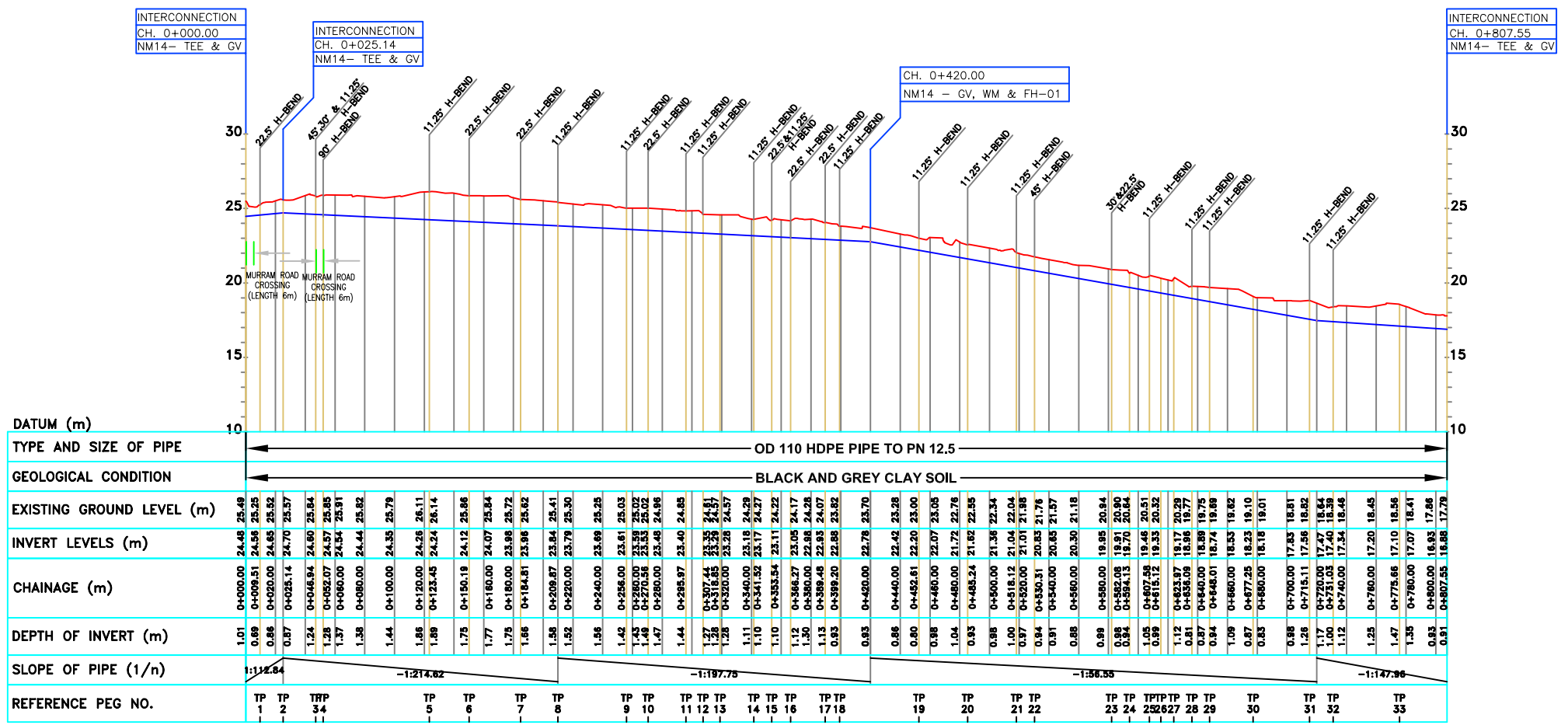
DRG No. **M410/M0/NM/NM13/03** REV. 0

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GATE VALVE
 - FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



PLAN



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED
	BY		
	CHECKED		
	BY		
	CHECKED		
	BY		
	CHECKED		
	BY		
	CHECKED		

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

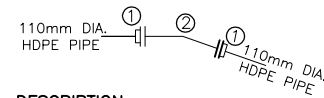
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM14
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+807.55)
 SHEET 1 OF 2**

Designed by: V.G.K | Drawn by: P.G.M
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/M0/NM/NM14/01** | REV. 0

DETAIL CH. 0+009.51, 0+150.19, 0+184.81, 0+270.56, 0+366.27 & 0+389.48
LINE NM14 - 22.5° H.BEND

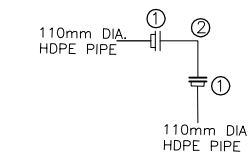


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+052.07
LINE NM14 - 90° H.BEND

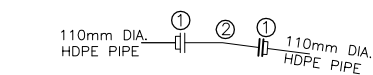


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 90° BEND

DETAIL CH. 0+123.45, 0+209.87, 0+256.00, 0+295.97, 0+307.44, 0+341.52, 0+399.20, 0+452.61, 0+485.24, 0+518.12, 0+607.58, 0+636.09, 0+648.01, 0+715.11 & 0+731.03
LINE NM14 - 11.25° H.BEND

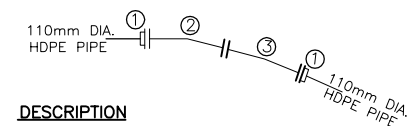


DESCRIPTION

15 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+353.54
LINE NM14 - 22.5° & 11.25° H.BEND

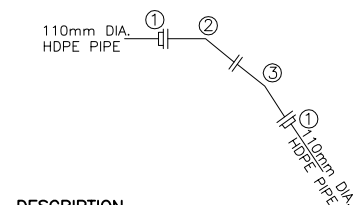


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+582.08
LINE NM14 - 30° & 22.5° H.BEND

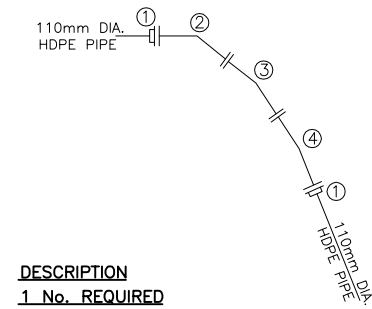


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+046.94
LINE NM14 - 45°, 30° & 11.25° H.BEND

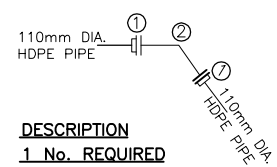


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ④ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+530.31
LINE NM14 - 45° H.BEND

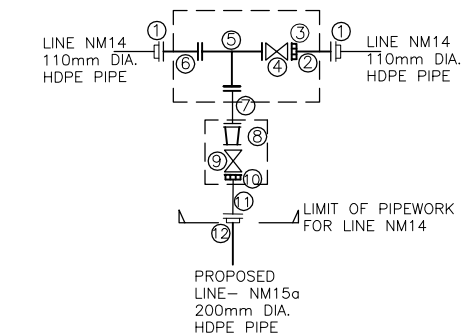


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+025.14
LINE NM14 - INTERCONNECTION

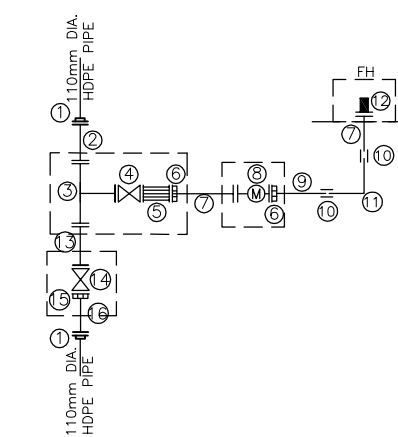


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑦ 1 Nos. 100mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑧ 1 No. 200x100mm DIA. ALL FLANGED FERROUS CONCENTRIC REDUCER
- ⑨ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑩ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑪ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑫ 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 0+420.00
LINE NM14 - GV, & FH - 01



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CH. 0+000.00 SEE DRG. NO. M410/MO/M/NM13/03 AT CH. 0+440.00
8. FOR FITTING DETAILS AT CH. 0+807.55 SEE DRG. NO. M410/MO/M/NM11/05 AT CH. 1+016.50

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

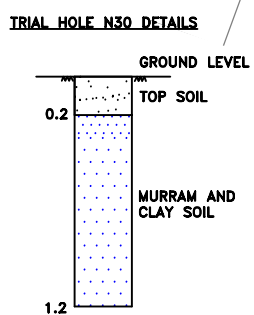
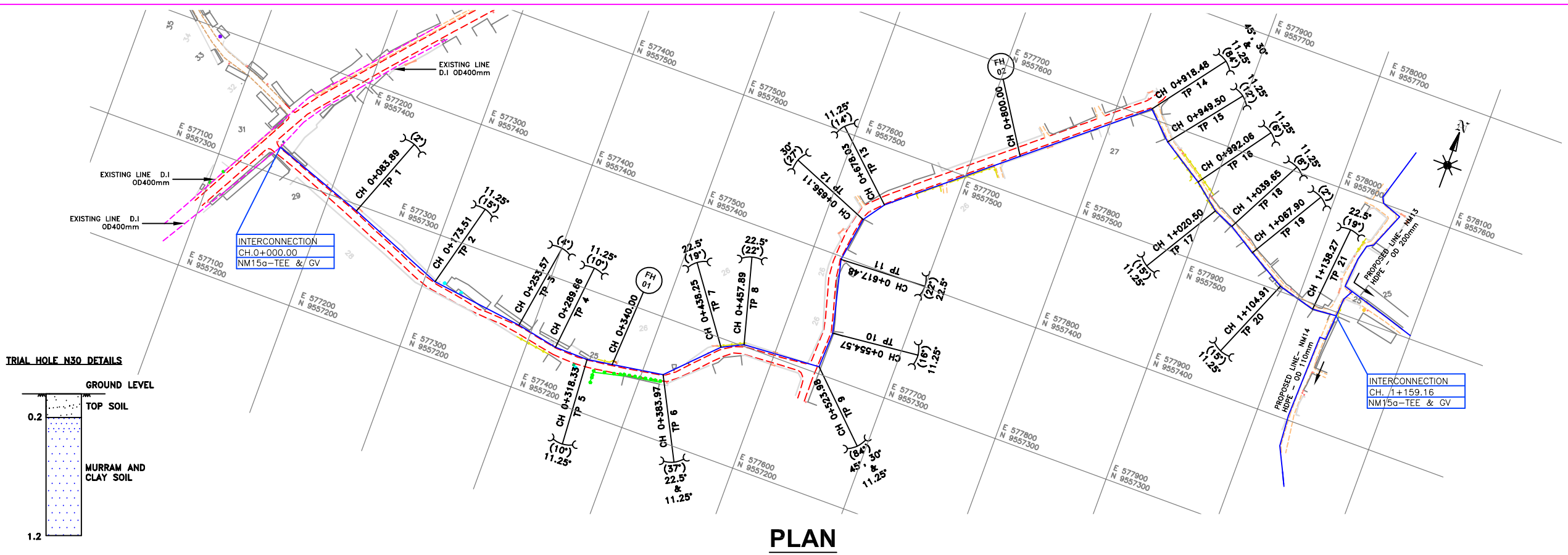
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

LINE NM14 FITTING DETAILS SHEET 2 OF 2

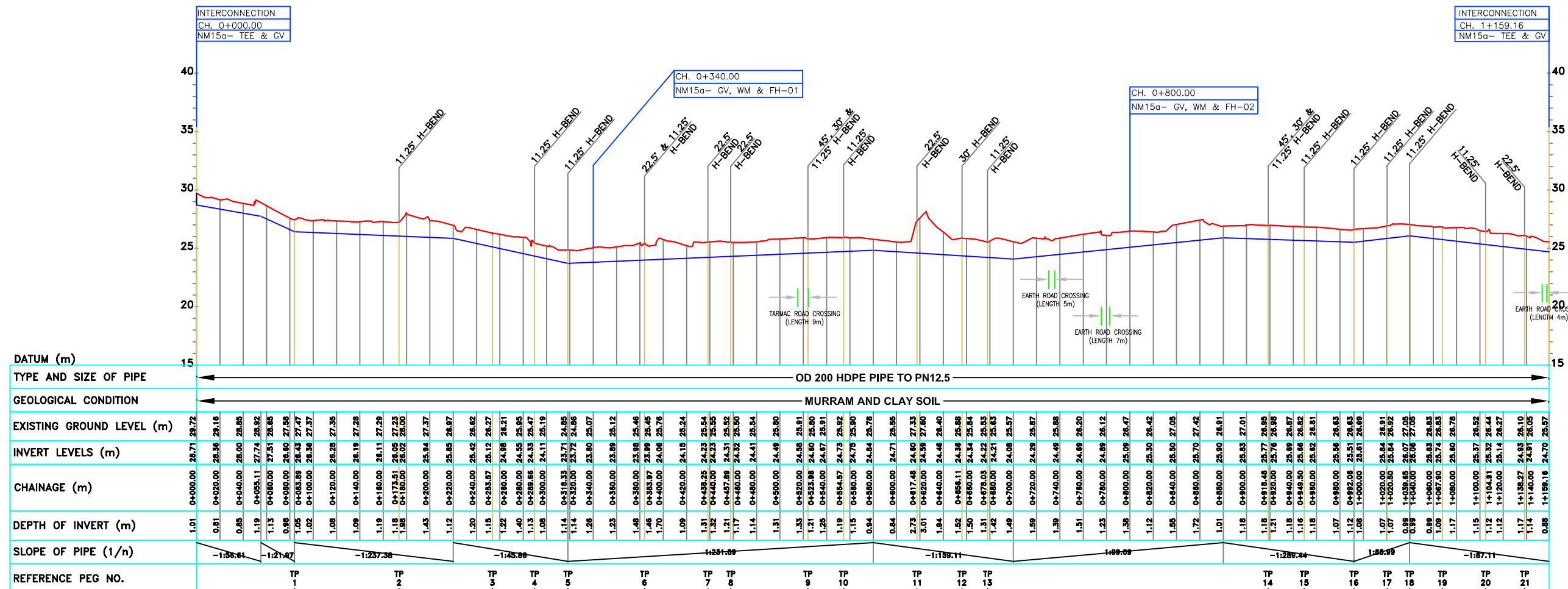
Designed by: V.G.K	Drawn by: P.G.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/M/NM14/02	REV. 0



PLAN

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WO-01 WASHOUT VALVE & No.
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

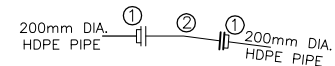
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM15a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+159.16)
 SHEET 1 OF 2**

Designed by: T.K.N | Drawn by: V.G.K
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H-1:4000, V-1:400 | Date: APRIL 2020
 DRG No. **M410/M0/NM/NM15a/01** | REV. 0

DETAIL CH. 0+438.25, 0+457.89, 0+617.48 & 1+138.27
LINE NM15a - 22.5° H.BEND

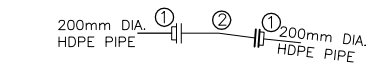


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+173.51, 0+289.66, 0+318.33, 0+554.57, 0+678.03, 0+946.50, 0+992.06, 1+020.50, 1+039.65 & 1+104.91
LINE NM15a - 11.25° H.BEND

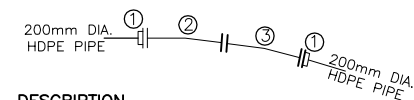


DESCRIPTION

10 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+383.97
LINE NM15a - 22.5° & 11.25° H.BEND

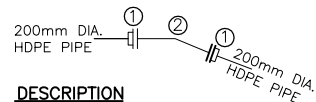


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+656.11
LINE NM15a - 30° H.BEND

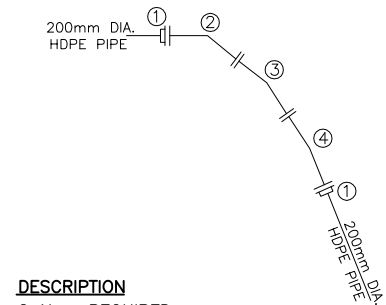


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+523.98 & 0+918.48
LINE NM15a - 45°, 30° & 11.25° H.BEND

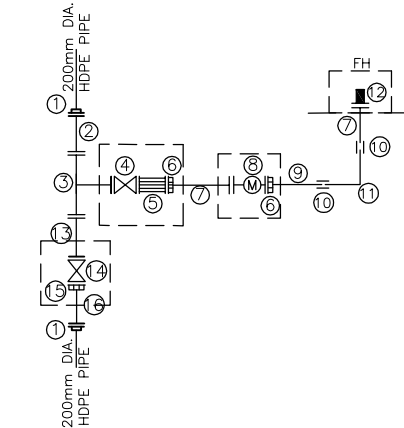


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND
- ④ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+340.00 & 0+800.00
LINE NM15a - GV, WM & FH - 01 & 02

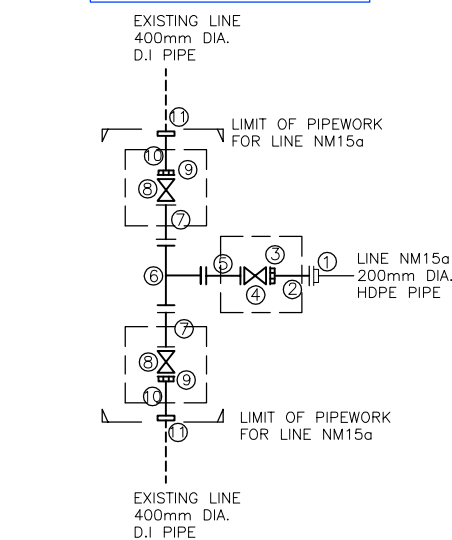


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+000.00
LINE NM15a - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 400x200mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ⑨ 2 Nos. 400mm DIA. V.J FLANGE ADAPTOR
- ⑩ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 400mm DIA. V.J STEPPED COUPLING

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHN. 1+159.16, SEE DRG NO. M410/M0/NM/NM14/02 ON LINE NM14 AT CHAINAGE 0+025.14

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

**LINE NM15a
FITTING DETAILS
SHEET 2 OF 2**

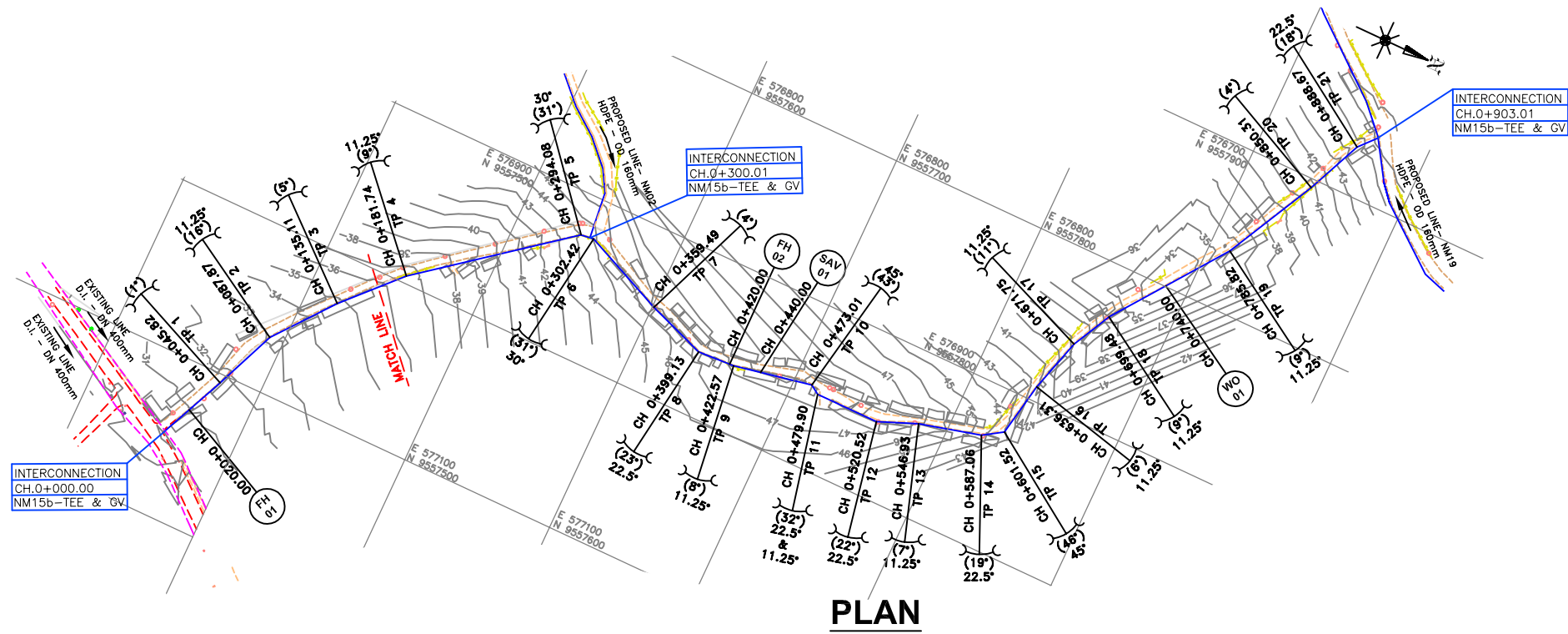
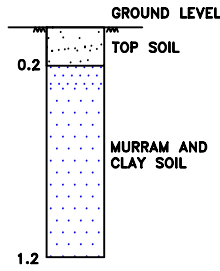
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

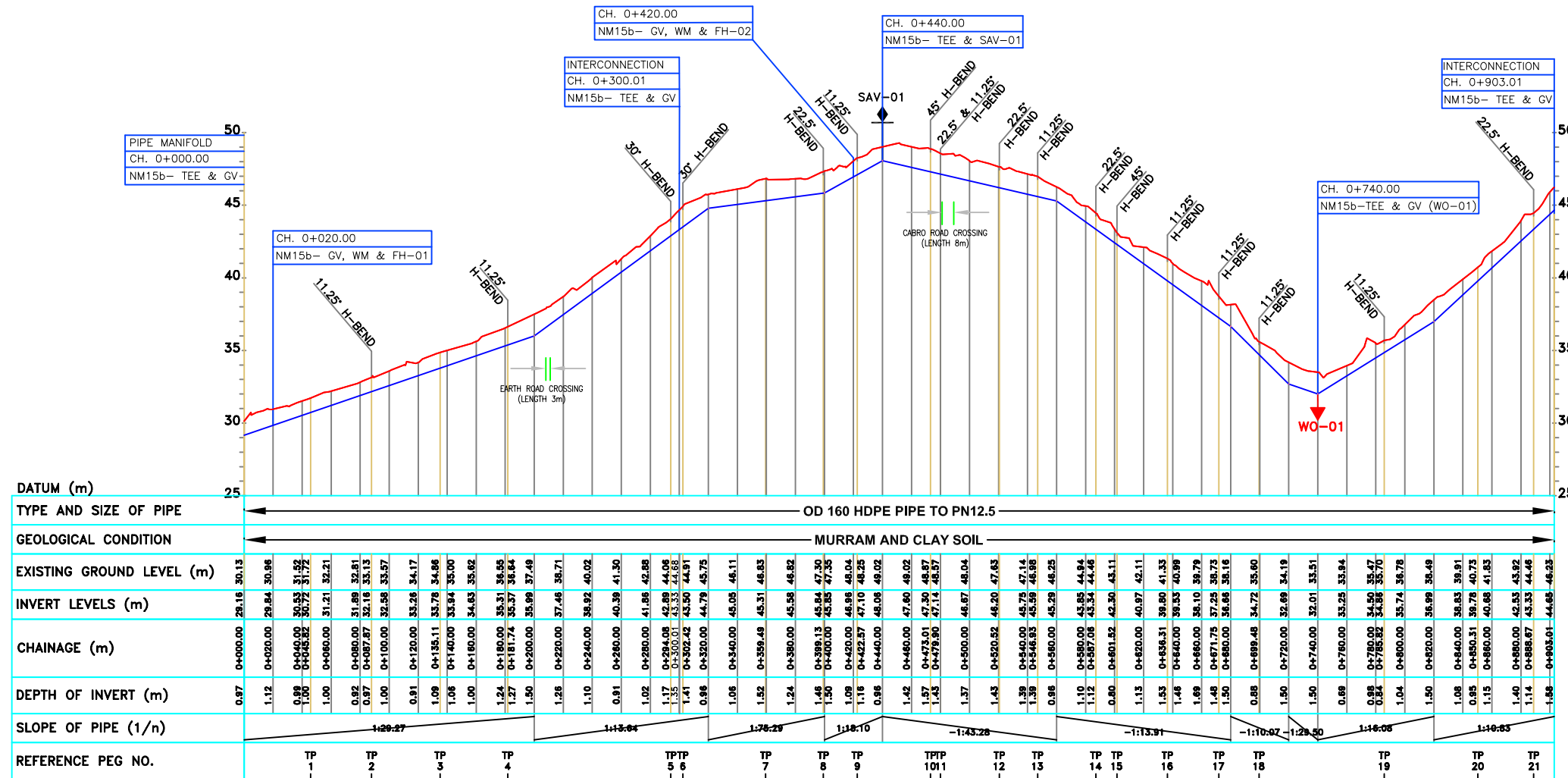
Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM15a/02** REV. 0

TRIAL HOLE N30 DETAILS



PLAN



LONGITUDINAL SECTION

NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GATE VALVE
- FIRE HYDRANT
- WASHOUT VALVE & No.
- SINGLE ORIFICE AIR VALVE & No.
- WATER METER
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS				
NO.	BY	DATE	APPROVED	SIGN
	CHECKED			
	CHECKED			
	CHECKED			
	CHECKED			
	CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

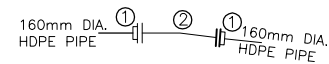
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM15b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+903.01)
 SHEET 1 OF 2**

Designed by: T.K.N | Drawn by: V.G.K
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/M0/NM15b/01** | REV. 0

DETAIL CH. 0+087.87, 0+181.74, 0+422.57, 0+546.93, 0+636.31, 0+671.75, 0+699.48 & 0+785.82
LINE NM15b - 11.25° H.BEND

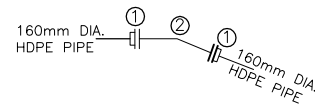


DESCRIPTION

8 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+294.08 & 0+302.42
LINE NM15b - 30° H.BEND

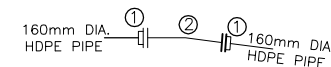


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+399.13, 0+520.52, 0+587.06 & 0+888.67
LINE NM15b - 22.5° H.BEND

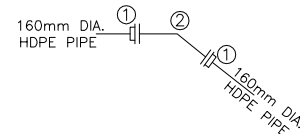


DESCRIPTION

4 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+473.01 & 0+601.52
LINE NM15b - 45° H.BEND

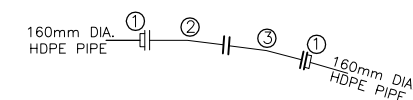


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+479.90
LINE NM15b - 22.5° & 11.25° H.BEND

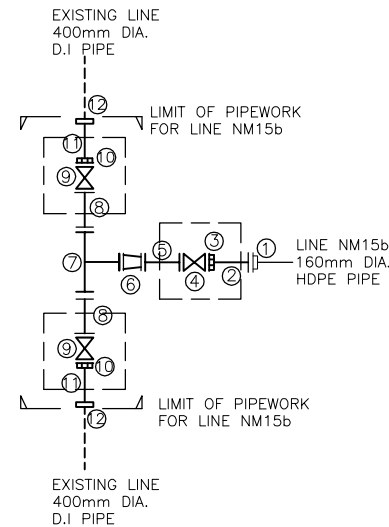


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+000.00
LINE NM15b - INTERCONNECTION

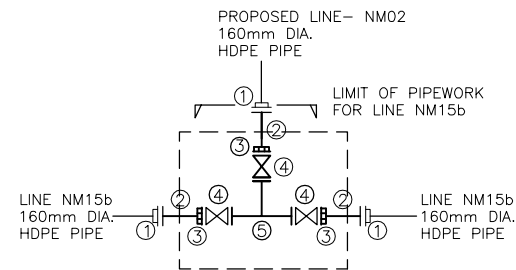


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑥ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 400x200mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 400mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 400mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+300.01
LINE NM15b - INTERCONNECTION

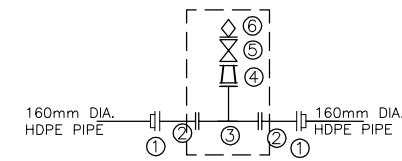


DESCRIPTION

1 No. REQUIRED

- ① 3 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 3 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ③ 3 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ④ 3 Nos. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150x150mm DIA. ALL FLANGED FERROUS TEE

DETAIL CH. 0+440.00
LINE NM15b - TEE & SAV - 01

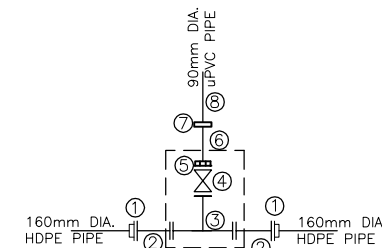


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 80x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑥ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

DETAIL CH. 0+740.00
LINE NM15b - TEE & GV (WO) - 01

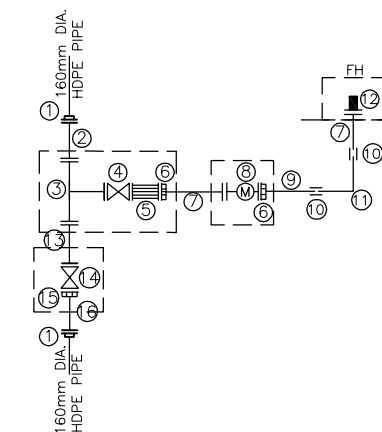


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. V.J FLANGE ADAPTOR
- ⑥ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑦ 1 No. 80mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 90mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

DETAIL CH. 0+020.00 & 0+420.00
LINE NM15b - GV, WM & FH - 01 & 02



DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 150x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 150mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHAINAGE 0+903.01 SEE DRG. NO. M410/M0/NM/NM19/04 AT CHAINAGE 0+783.46

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

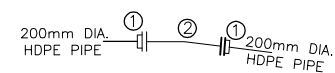
DRAWING TITLE:

LINE NM15b FITTING DETAILS

SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM15b/02	REV. 0

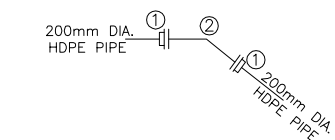
DETAIL CH. 0+005.77
LINE NM16 - 22.5° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 22.5° BEND

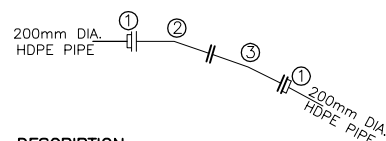
DETAIL CH. 0+312.82
LINE NM16 - 45° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 45° BEND

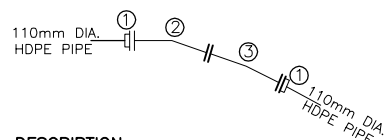
DETAIL CH. 0+320.87
LINE NM16 - 30° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

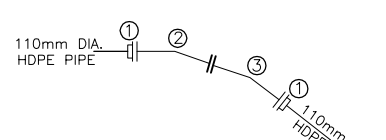
DETAIL CH. 0+547.01
LINE NM16 - 30° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

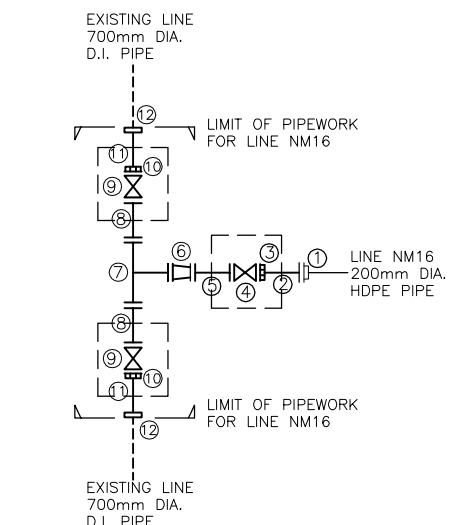
DETAIL CH. 0+552.06
LINE NM16 - 30° & 22.5° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+000.00
LINE NM16 - INTERCONNECTION

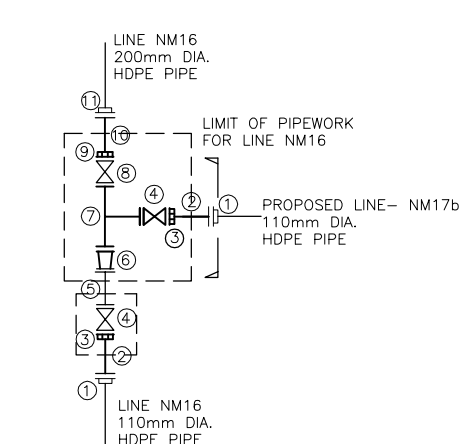


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 700x350mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 700mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 700mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 700mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 700mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+350.00
LINE NM16 - INTERCONNECTION

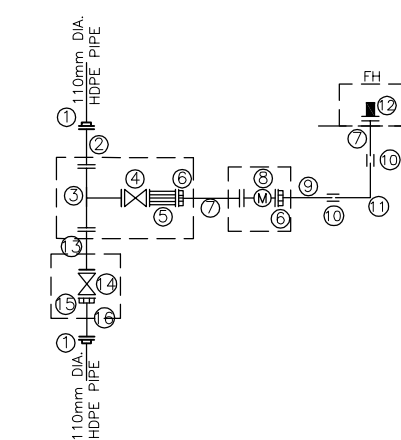


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑪ 1 No. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING

DETAIL CH. 0+740.00
LINE NM16 - GV, WM & FH - 02

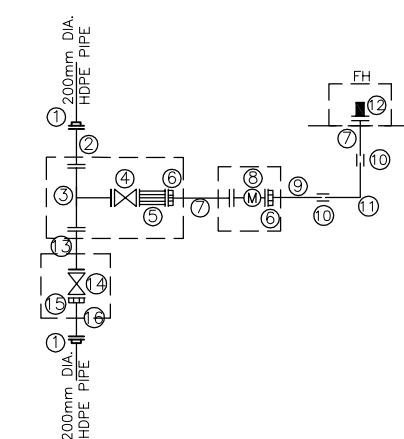


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+280.00
LINE NM16 - GV, WM & FH - 01

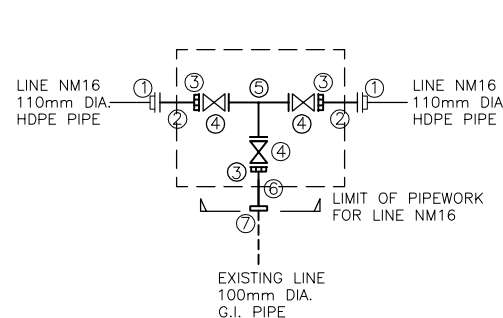


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+615.00
LINE NM16 - INTERCONNECTION

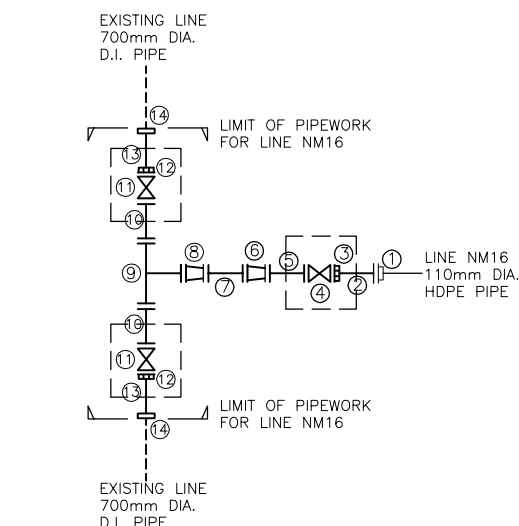


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 3 Nos. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
- ⑥ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 100mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+875.14
LINE NM16 - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 1 No. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑨ 1 No. 700x350mm DIA. ALL FLANGED FERROUS TEE
- ⑩ 2 Nos. 700mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 700mm DIA. ALL FLANGED GATE VALVE
- ⑫ 2 Nos. 700mm DIA. V.J FLANGE ADAPTOR
- ⑬ 2 Nos. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑭ 2 Nos. 700mm DIA. V.J STEPPED COUPLING

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

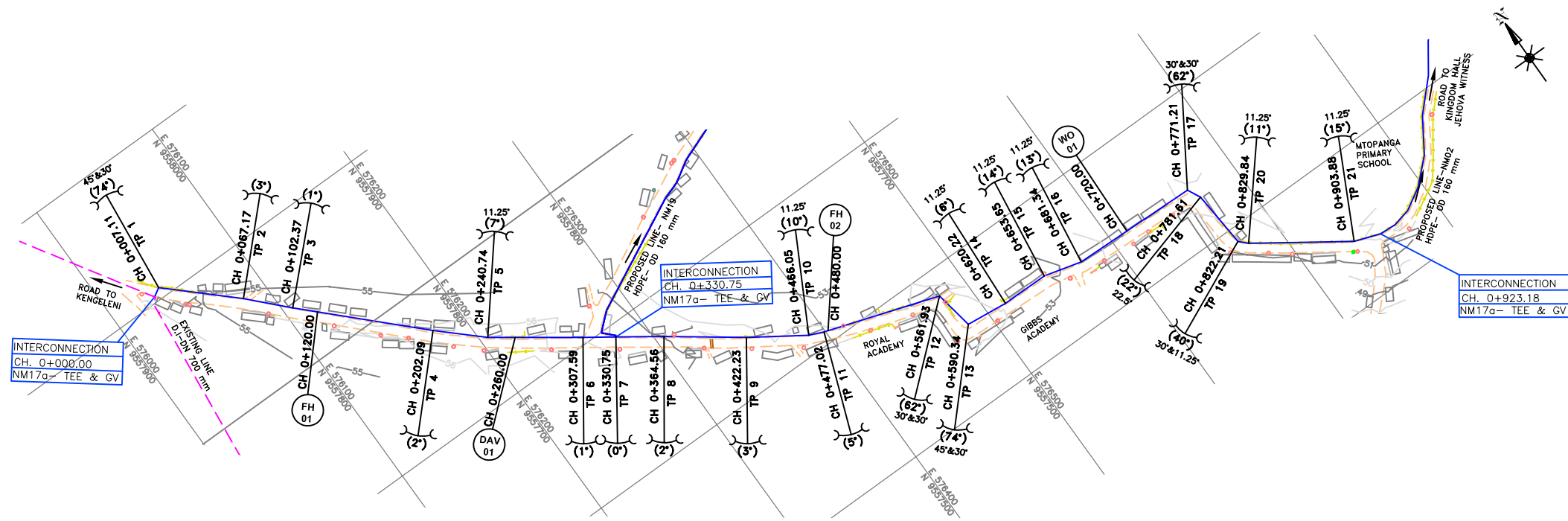
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

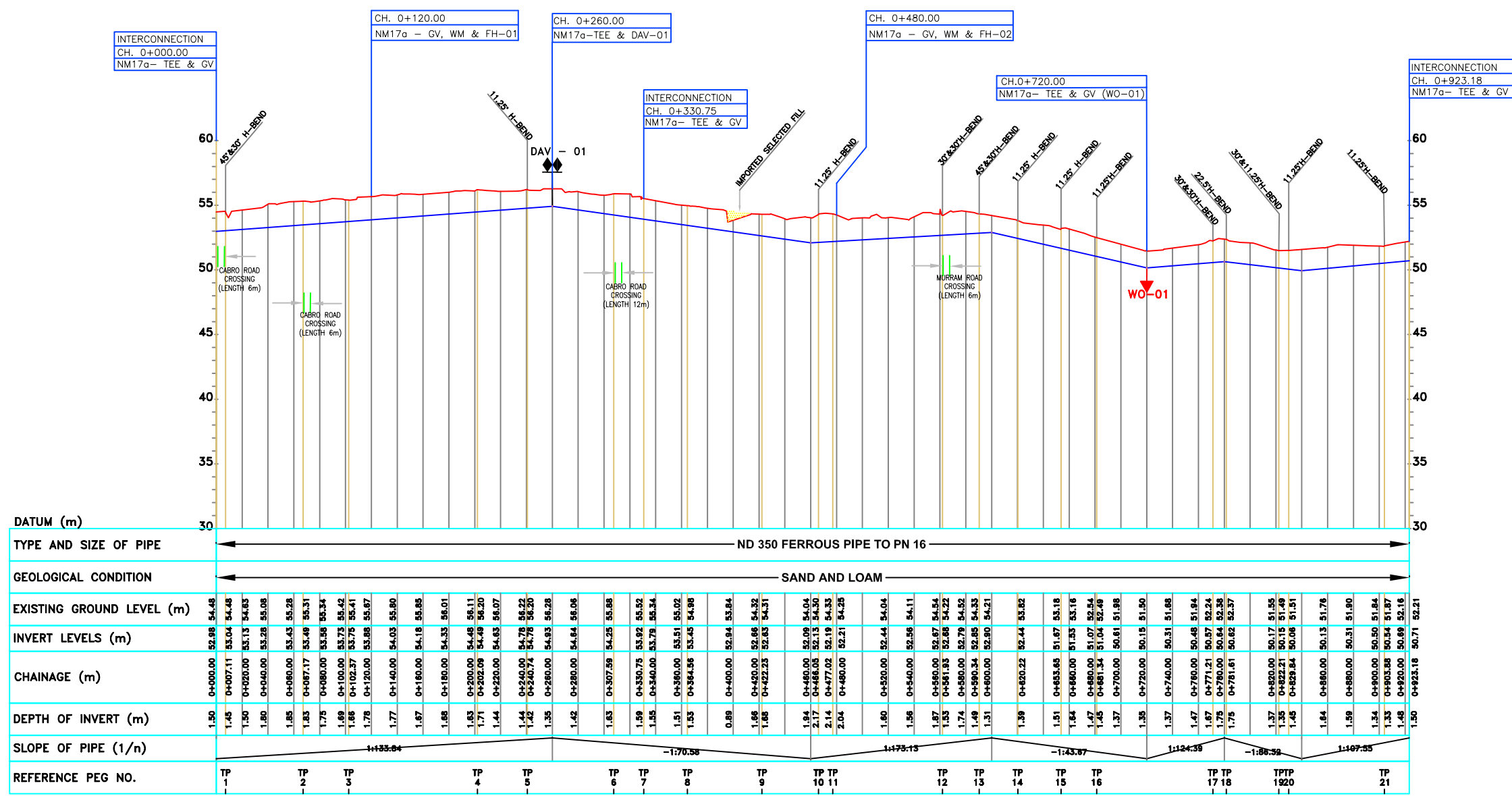
DRAWING TITLE:
LINE NM16 FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H-1:4000, V-1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM16/02	REV. 0



PLAN

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WO-01 WASHOUT VALVE & No.
 - DAV-01 DOUBLE ORIFICE AIR VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



LONGITUDINAL SECTION

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 CONSULTING ENGINEERS
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM17a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+923.18)
 SHEET 1 OF 2**

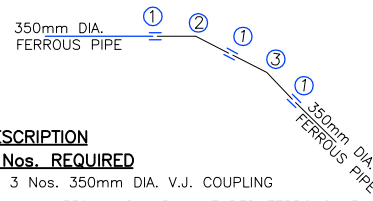
Designed by: V.G.K | Drawn by: D.E.N

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

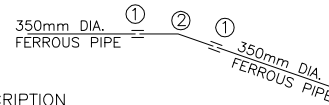
DRG No. **M410/M0/NM/NM17a/01** | REV. 0

CH. 0+007.11 & 0+590.34
DETAIL LINE NM17a - 45° & 30° H.BEND



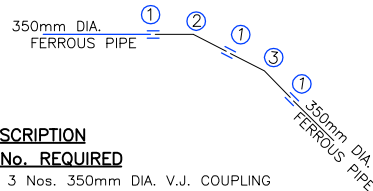
- DESCRIPTION**
2 Nos. REQUIRED
 ① 3 Nos. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 45° BEND
 ③ 1 No. 350mm DIA. PLAIN ENDED FERROUS 30° BEND

CH. 0+781.61
DETAIL LINE NM17a - 22.5° H.BEND



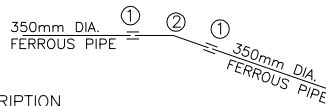
- DESCRIPTION**
1 No. REQUIRED
 ① 2 Nos. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 22.5° BEND

CH. 0+822.21
DETAIL LINE NM17a - 30° & 11.25° H.BEND



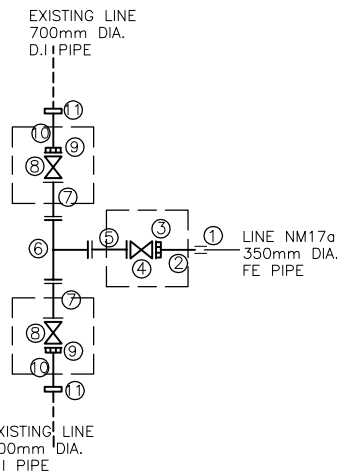
- DESCRIPTION**
1 No. REQUIRED
 ① 3 Nos. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 30° BEND
 ③ 1 No. 350mm DIA. PLAIN ENDED FERROUS 11.25° BEND

CH. 0+240.74, 0+466.05, 0+620.22, 0+653.65, 0+681.34, 0+829.84 & 0+903.88,
DETAIL LINE NM17a - 11.25° H.BEND



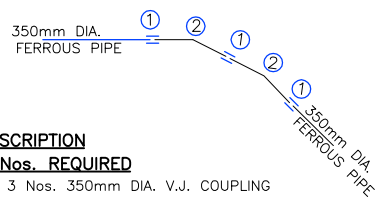
- DESCRIPTION**
7 Nos. REQUIRED
 ① 2 Nos. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 11.25° BEND

CH. 0+000.00
DETAIL LINE NM17a - INTERCONNECTION



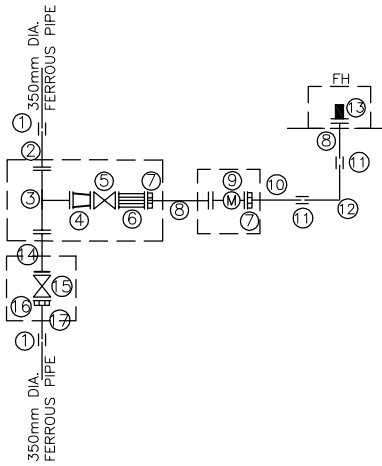
- DESCRIPTION**
1 No. REQUIRED
 ① 1 No. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 ③ 1 No. 350mm DIA. V.J. FLANGE ADAPTOR
 ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 ⑤ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
 ⑥ 1 No. 700x350mm DIA. ALL FLANGED FERROUS TEE
 ⑦ 2 Nos. 700mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
 ⑧ 2 Nos. 700mm DIA. ALL FLANGED GATE VALVE
 ⑨ 2 Nos. 700mm DIA. V.J. FLANGE ADAPTOR
 ⑩ 2 Nos. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 ⑪ 2 Nos. 700mm DIA. V.J. STEPPED COUPLING

CH. 0+561.93 & 0+771.21
DETAIL LINE NM17a - 30° & 30° H.BEND



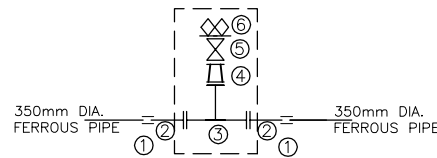
- DESCRIPTION**
2 Nos. REQUIRED
 ① 3 Nos. 350mm DIA. V.J. COUPLING
 ② 2 Nos. 350mm DIA. PLAIN ENDED FERROUS 30° BEND

CH. 0+120.00 & 0+480.00
DETAIL LINE NM17a - GV, WM & FH - 01 & 02



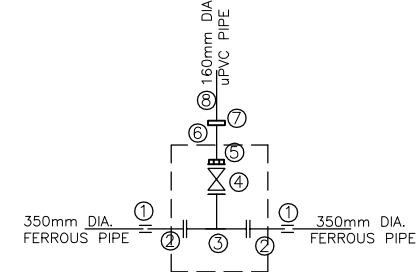
- DESCRIPTION**
2 Nos. REQUIRED
 ① 2 Nos. 350mm DIA. V.J. COUPLING
 ② 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 ③ 1 No. 350x150mm DIA. ALL FLANGED TEE
 ④ 1 No. 150x80mm DIA. ALL FLANGED CONCENTRIC TAPER
 ⑤ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
 ⑥ 1 No. 80mm DIA. ALL FLANGED STRAINER
 ⑦ 2 Nos. 80mm DIA. V.J. FLANGE ADAPTOR
 ⑧ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 ⑨ 1 No. 80mm DIA. ALL FLANGED WATER METER
 ⑩ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 ⑪ 2 Nos. 80mm DIA. V.J. COUPLING
 ⑫ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
 ⑬ 1 No. 80mm DIA. FIRE HYDRANT
 ⑭ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
 ⑮ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
 ⑯ 1 No. 350mm DIA. V.J. FLANGE ADAPTOR
 ⑰ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG

CH. 0+260.00
DETAIL LINE NM17a - TEE & DAV-01



- DESCRIPTION**
1 No. REQUIRED
 ① 2 Nos. 350mm DIA. V.J. COUPLING
 ② 2 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 ③ 1 No. 350x150mm DIA. ALL FLANGED FERROUS TEE
 ④ 1 No. 150x50mm DIA. ALL FLANGED CONCENTRIC TAPER
 ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
 ⑥ 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE

CH. 0+720.00
DETAIL LINE NM17a - TEE & GV (WO - 01)



- DESCRIPTION**
1 No. REQUIRED
 ① 2 Nos. 350mm DIA. V.J. COUPLING
 ② 2 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 ③ 1 No. 350x150mm DIA. ALL FLANGED FERROUS INVERTED TEE
 ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 ⑤ 1 No. 150mm DIA. V.J. FLANGE ADAPTOR
 ⑥ 1 No. 150mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 ⑦ 1 No. 150mm DIA. V.J. STEPPED COUPLING
 ⑧ 1 No. 160mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- FOR FITTING DETAILS AT CH. 0+330.75 SEE DRG. NO. M410/M0/NM/NM19/03 AT CH. 1+273.15
- FOR FITTING DETAILS AT CH. 0+923.18 SEE DRG. NO. M410/M0/NM/NM02/01 AT CH. 0+900.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
DAV-01	DOUBLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

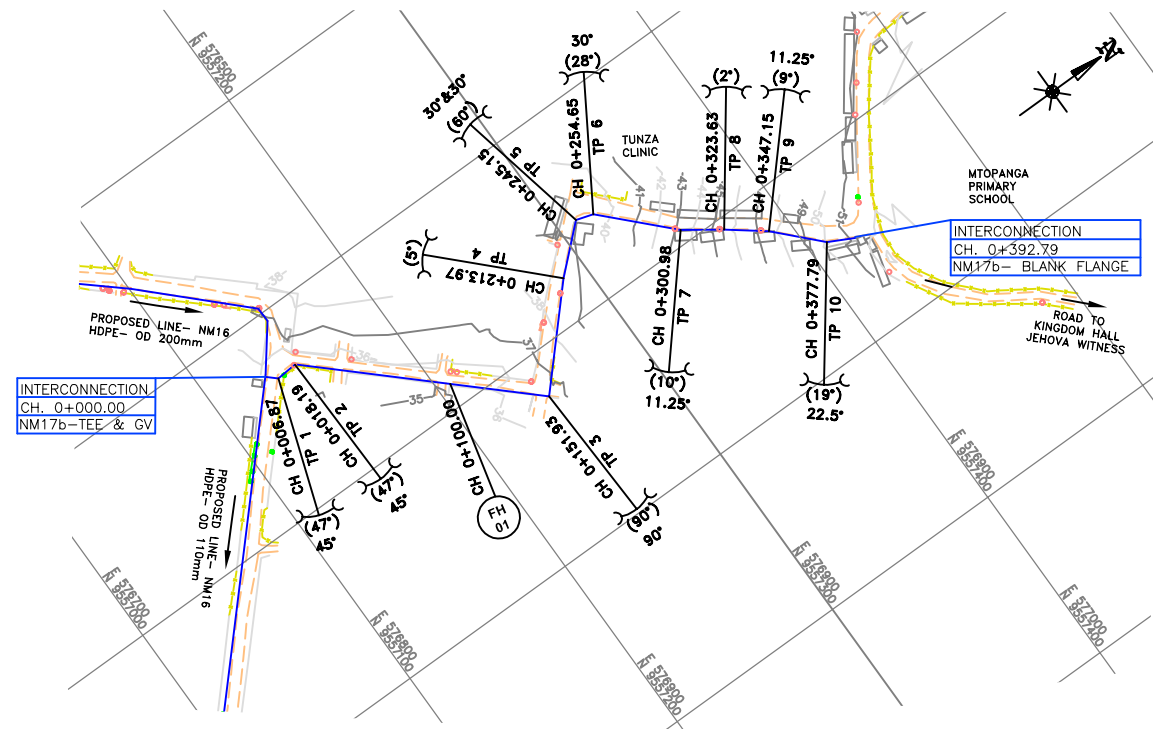
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

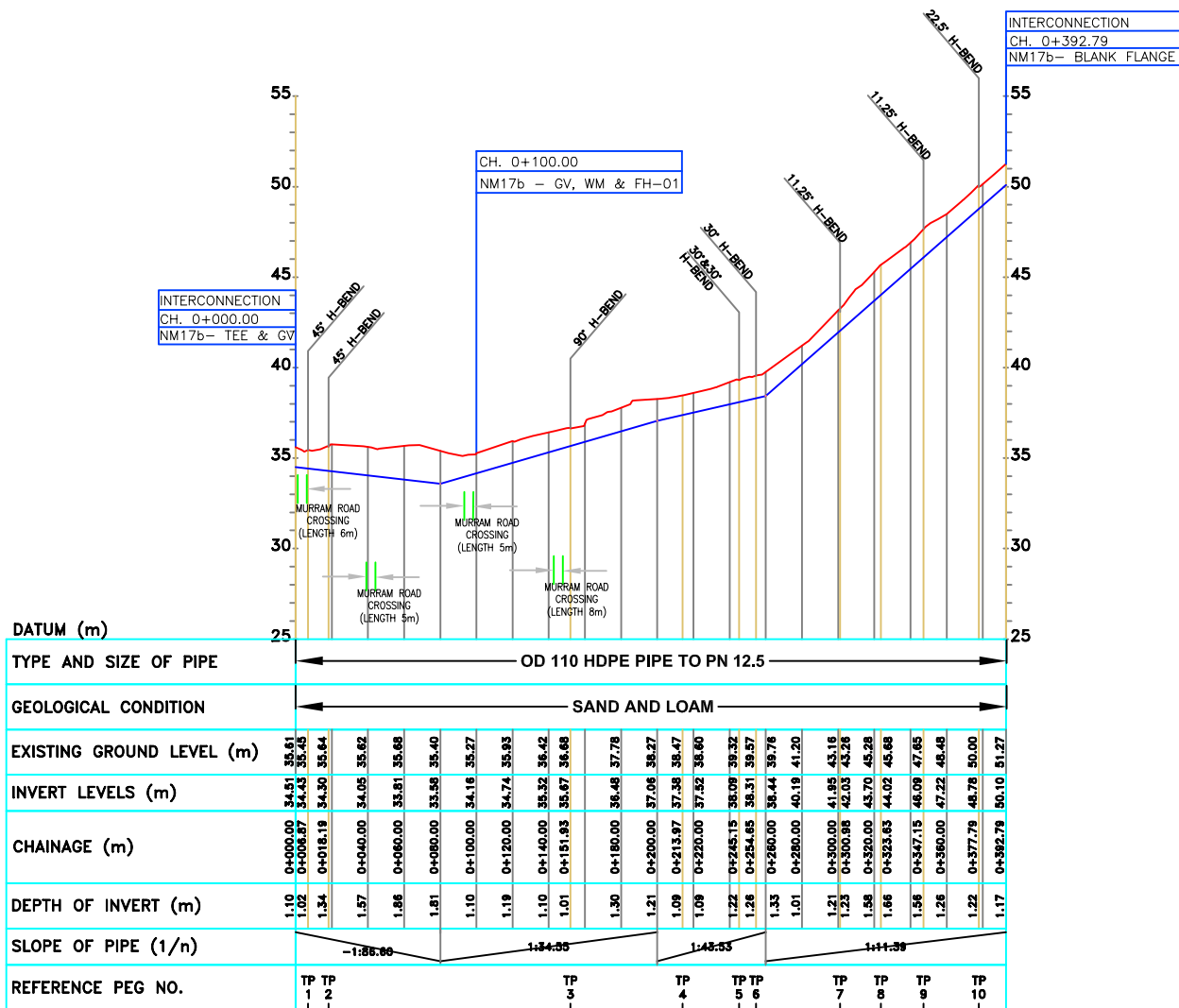
DRAWING TITLE:

**LINE NM17a
 FITTING DETAILS
 SHEET 2 OF 2**

Designed by: V.G.K	Drawn by: D.E.N
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM17a/02	REV. 0



PLAN



LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GATE VALVE
 - FIRE HYDRANT
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674,00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

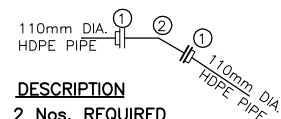
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM17b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+392.79)
 SHEET 1 OF 2**

Designed by: V.G.K	Drawn by: D.E.N
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM17b/01	REV. 0

DETAIL CH. 0+006.87 & CH. 0+018.19
LINE NM17b - 45° H.BEND

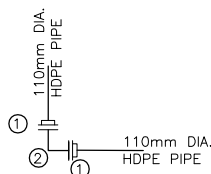


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. 45° ALL FLANGED FERROUS BEND

DETAIL CH. 0+151.93
LINE NM17b - 90° H.BEND

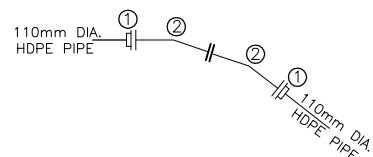


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. 90° ALL FLANGED FERROUS BEND

DETAIL CH. 0+245.15
LINE NM17b - 30° & 30° H.BEND

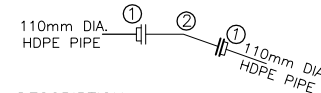


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+254.65
LINE NM17b - 30° H.BEND

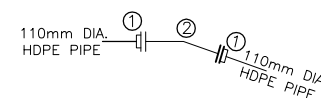


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

DETAIL CH. 0+300.98 & CH. 0+347.15
LINE NM17b - 11.25° H.BEND

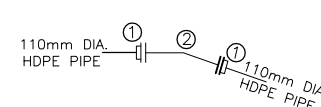


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+377.79
LINE NM17b - 22.5° H.BEND

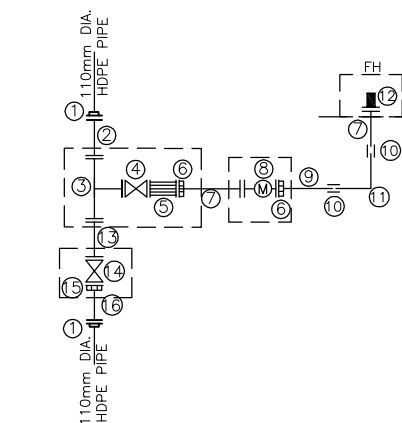


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+100.00
LINE NM17b - GV, WM & FH - 01 & 02

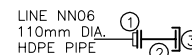


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 0+392.79
LINE NM17b - BLANK FLANGE



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CH. 0+000.00 SEE DRG. No. M410/M0/NM/NM16/02 AT CH. 0+350.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

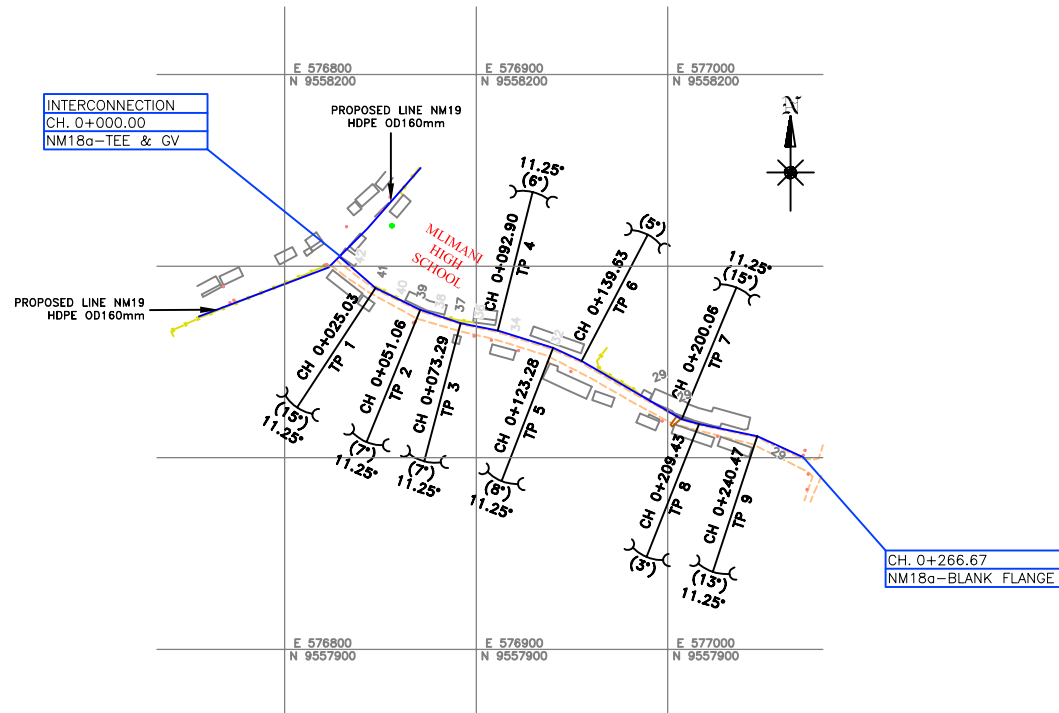
**LINE NM17b
FITTING DETAILS
SHEET 2 OF 2**

Designed by: V.G.K Drawn by: D.E.N

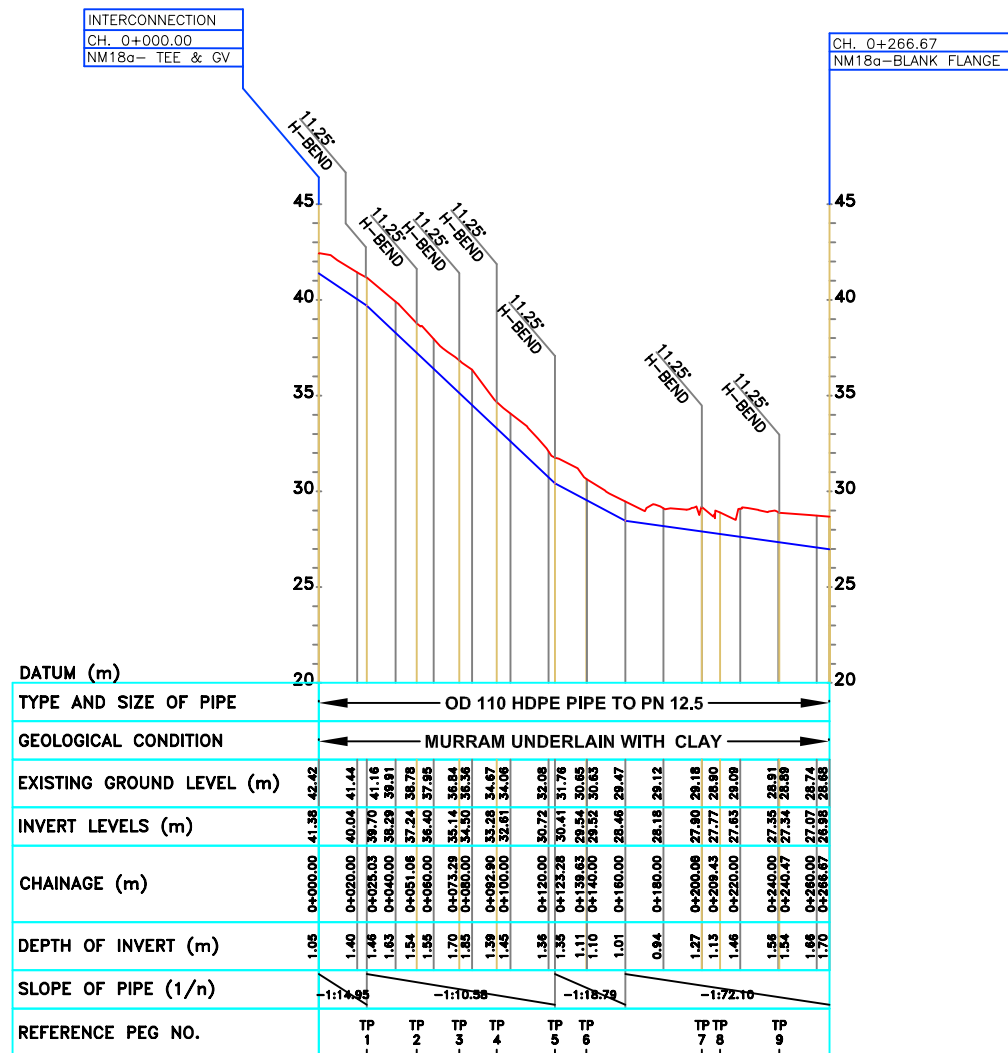
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM17b/02** REV. 0

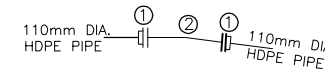


PLAN



LONGITUDINAL SECTION

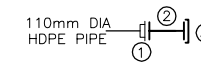
DETAIL
 CH. 0+025.03, 0+051.06, 0+073.29, 0+092.90, 0+123.28
 0+200.06 & 0+240.47
 LINE NM18a - 11.25° H.BEND



DESCRIPTION
 7 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL
 CH. 0+266.67
 NM18a - BLANK FLANGE



DESCRIPTION
 1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
7. FOR FITTING DETAILS AT CHN. 0+000.00, SEE DRG No. M410/M0/NM19/03 ON LINE NM19 AT CHN. 0+555.33

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GV GATE VALVE
- FH FIRE HYDRANT
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

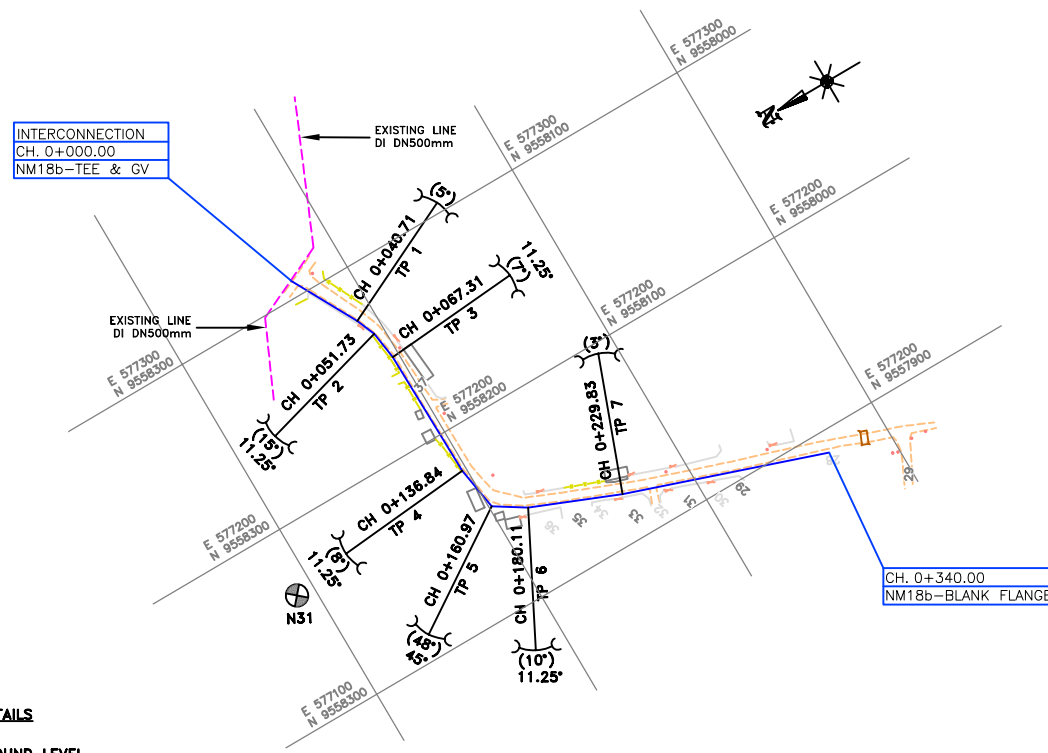
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

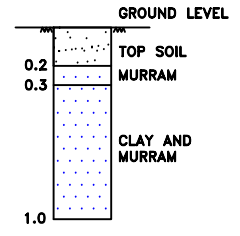
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM18a
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+266.67)
 SHEET 1 OF 1**

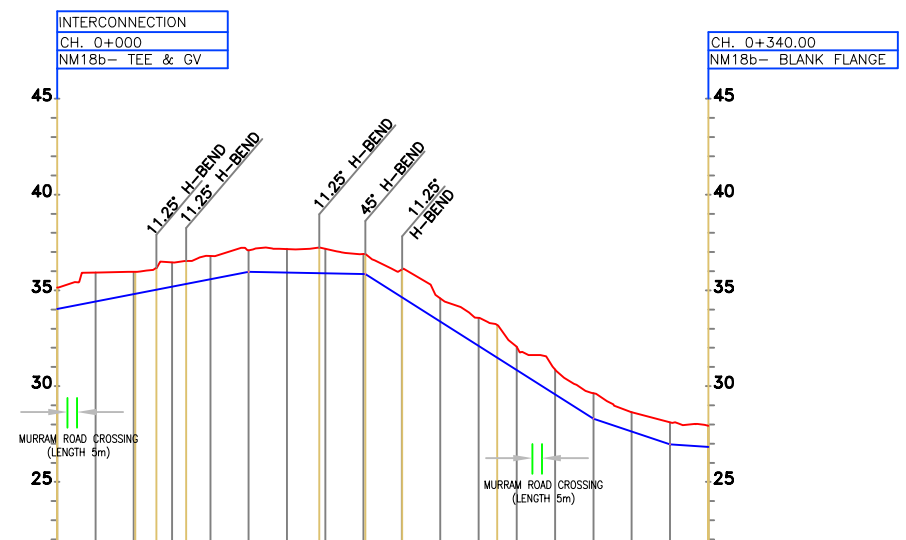
Designed by: T.K.N Drawn by: V.G.K
 Checked by: E.I.M Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 Date: APRIL 2020
 DRG No. **M410/M0/NM18a/01** REV. 0



TRIAL HOLE N31 DETAILS



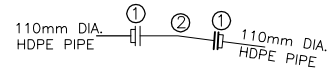
PLAN



DATUM (m)	20																	
TYPE AND SIZE OF PIPE	OD 110 HDPE PIPE TO PN 12.5																	
GEOLOGICAL CONDITION	MURRAM UNDERLAIN WITH CLAY																	
EXISTING GROUND LEVEL (m)	34.03	35.15																
INVERT LEVELS (m)	34.03	35.15	34.42	35.93	34.81	35.97	34.32	35.97	35.03	36.19	36.43	35.33	36.53	35.58	36.79			
CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00
DEPTH OF INVERT (m)	1.12	1.51	1.16	1.15	1.15	1.28	1.08	1.08	1.45	1.46	1.21	1.48	1.22	1.31	1.33	1.01	1.14	1.10
SLOPE OF PIPE (1/n)			1:84.76			-1:500.80					-1:15.76					-1:29.94	-1:151.88	
REFERENCE PEG NO.		TP 1	TP 2	TP 3		TP 4	TP 5	TP 6			TP 7							

LONGITUDINAL SECTION

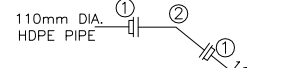
DETAIL CH. 0+051.73, 0+067.31, 0+136.84 & 0+180.11
LINE NM18b - 11.25° H.BEND



DESCRIPTION
4 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

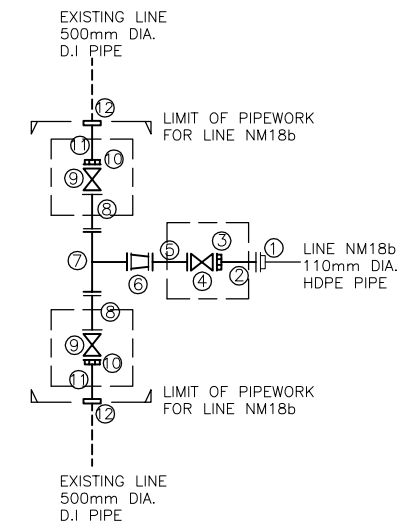
DETAIL CH. 0+160.97
LINE NM18b - 45° H.BEND



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

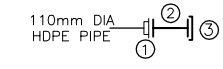
DETAIL CH. 0+000.00
LINE NM18b - INTERCONNECTION



DESCRIPTION
1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 250x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 500x250mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 500mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 500mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 500mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 500mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 500mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+340.00
NM18b - BLANK FLANGE



DESCRIPTION
1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - 14 --- CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - ⊗ TRIAL HOLE
 - 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - 1/n PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

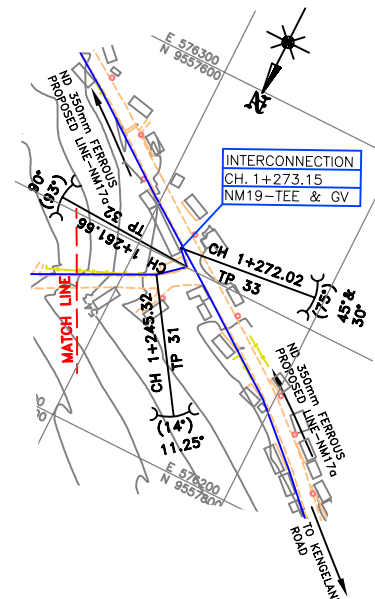
DRAWING TITLE:
**LINE NM18b
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+340.00)
 SHEET 1 OF 1**

Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

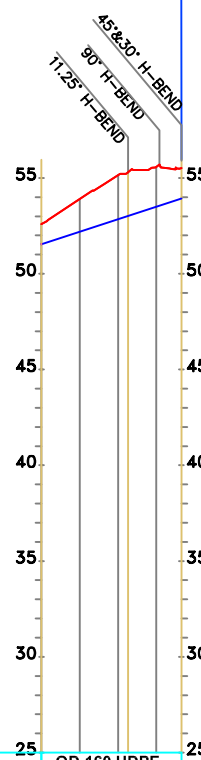
Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM18b/01** REV. 0



PLAN

INTERCONNECTION
CH. 1+273.15
NM19- TEE & GV



DATUM (m)	25					25
TYPE AND SIZE OF PIPE	OD 160 HDPE PIPE TO PN 12.5					
GEOLOGICAL CONDITION	MURRAM AND CLAY SOIL MIXTURE					
EXISTING GROUND LEVEL (m)	52.99	53.90	55.15	55.31	55.70	55.48
INVERT LEVELS (m)	51.95	52.20	52.85	53.02	53.55	53.93
CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+245.32	1+261.96	1+272.02
DEPTH OF INVERT (m)	1.04	1.70	2.30	2.28	2.15	1.56
SLOPE OF PIPE (1/n)	1:36.72					
REFERENCE PEG NO.				TP 31	TP 32	TP 33

LONGITUDINAL SECTION

NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM / CABRO)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PAVEMENT BLOCKS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN/WATER MAIN UNDER CONSTRUCTION
- TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- GATE VALVE
- FIRE HYDRANT
- WATER METER
- PROPOSED MASONRY CHAMBER

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM19
PLAN & LONGITUDINAL SECTION
(CH 1+200.00 - 1+273.15)
SHEET 2 OF 3**

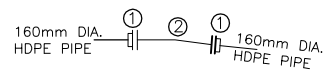
Designed by: S.C.K | Drawn by: S.C.K

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

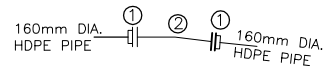
DRG No. **M410/MO/NM/NM19/02** | REV. 0

CH. 0+021.88, 0+226.33, 0+288.66, 0+635.69, 0+741.97, 0+755.17, 0+784.51, 0+807.37, 0+868.72, 0+956.81, 1+088.47, 1+125.82, 1+143.28, 1+156.76 & 1+245.32
DETAIL LINE NM19 - 11.25° H.BEND



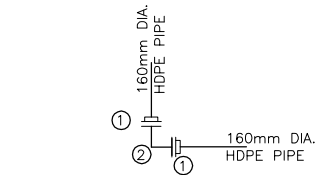
- DESCRIPTION**
15 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+060.00, 0+140.00 & 0+380.00
DETAIL LINE NM19 - 11.25° V.BEND



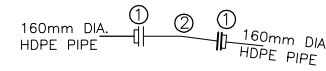
- DESCRIPTION**
3 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+127.33, 0+457.28 & 1+261.66
DETAIL LINE NM19 - 90° H.BEND



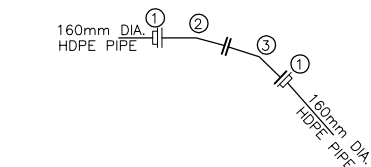
- DESCRIPTION**
3 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. 90° ALL FLANGED FERROUS BEND

CH. 0+116.91, 0+376.41, 0+424.27, 0+446.21, 0+563.35, 0+656.41, 0+663.14 & 0+692.20
DETAIL LINE NM19 - 22.5° H.BEND



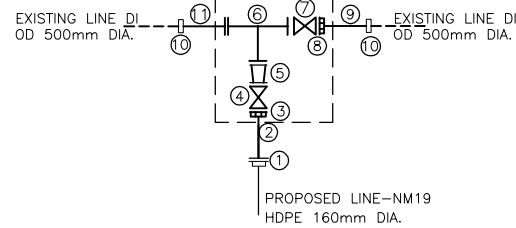
- DESCRIPTION**
8 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 1+272.02
DETAIL LINE NM19 - 45° & 30° H.BEND



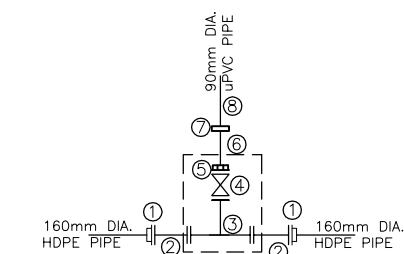
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. 45° ALL FLANGED FERROUS BEND
 - ③ 1 No. 150mm DIA. 30° ALL FLANGED FERROUS BEND

CH. 0+000.00
DETAIL NM19 - INTERCONNECTION



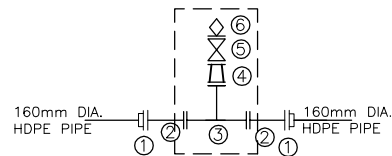
- DESCRIPTION**
1 No. REQUIRED
- ① 1 No. 160mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 1 No. 150mm DIA. FLANGE ADAPTOR
 - ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 250x150mm DIA. ALL FLANGED FERROUS CONCENTRIC TAPER
 - ⑥ 1 No. 500x250mm DIA. ALL FLANGED FERROUS TEE
 - ⑦ 1 No. 500mm DIA. ALL FLANGED GATE VALVE
 - ⑧ 1 No. 500mm DIA. FLANGE ADAPTOR
 - ⑨ 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑩ 2 No. 500mm DIA. V.J STEPPED COUPLING
 - ⑪ 1 No. 500mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

CH. 0+060.00 & 0+380.00
DETAIL LINE NM19 - TEE & GV (WO) - 01 & 02



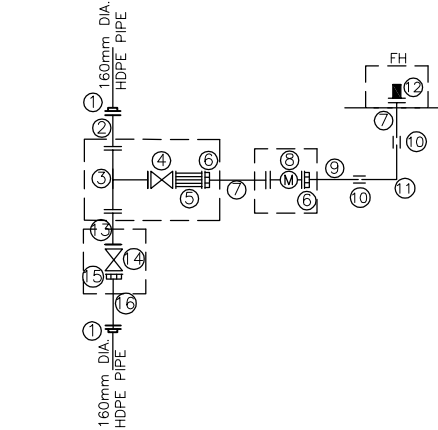
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 2 Nos. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ③ 1 No. 150x80mm DIA. ALL FLANGED FERROUS INVERTED TEE
 - ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 80mm DIA. V.J FLANGE ADAPTOR
 - ⑥ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑦ 1 No. 80mm DIA. V.J. STEPPED COUPLING
 - ⑧ 1 No. 90mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

CH. 0+140.00 & 0+520.00
DETAIL LINE NM19 - TEE & SAV-01 & 02



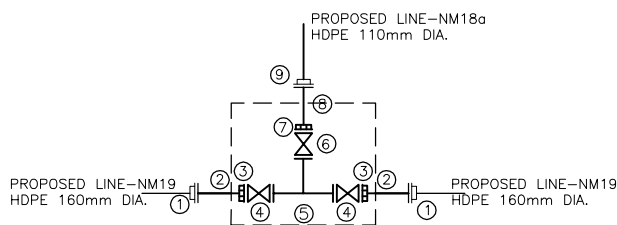
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 2 Nos. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
 - ③ 1 No. 150x80mm DIA. ALL FLANGED FERROUS TEE
 - ④ 1 No. 80x50mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
 - ⑥ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

CH. 0+300.00 & 0+820.00
DETAIL LINE NM19 - GV, WM & FH - 01 & 02



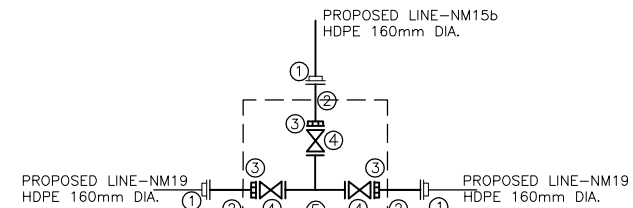
- DESCRIPTION**
2 Nos. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ③ 1 No. 150x80mm DIA. ALL FLANGED TEE
 - ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
 - ⑥ 2 Nos. 80mm DIA. FLANGE ADAPTOR
 - ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
 - ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
 - ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
 - ⑫ 1 No. 80mm DIA. FIRE HYDRANT
 - ⑬ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
 - ⑭ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑮ 1 No. 150mm DIA. FLANGE ADAPTOR
 - ⑯ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

CH. 0+555.33
DETAIL NM19 - INTERCONNECTION



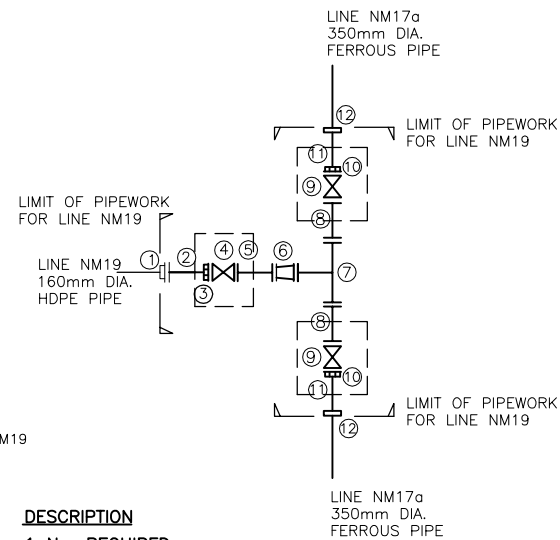
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 160mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 2 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 2 Nos. 150mm DIA. FLANGE ADAPTOR
 - ④ 2 Nos. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 150x100mm DIA. ALL FLANGED FERROUS TEE
 - ⑥ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
 - ⑦ 1 No. 100mm DIA. FLANGE ADAPTOR
 - ⑧ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑨ 1 No. 110mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING

CH. 0+783.46
DETAIL NM19 - INTERCONNECTION



- DESCRIPTION**
1 No. REQUIRED
- ① 3 Nos. 160mm DIA. P.E. FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 3 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ③ 3 Nos. 150mm DIA. FLANGE ADAPTOR
 - ④ 3 Nos. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 150x150mm DIA. ALL FLANGED FERROUS TEE

CH. 1+273.15
DETAIL NM19 - INTERCONNECTION



- DESCRIPTION**
1 No. REQUIRED
- ① 1 Nos. 160mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 - ③ 1 Nos. 150mm DIA. V.J FLANGE ADAPTOR
 - ④ 1 Nos. 150mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
 - ⑥ 1 No. 200x150mm DIA. ALL FLANGED CONCENTRIC TAPER
 - ⑦ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
 - ⑧ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
 - ⑨ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
 - ⑩ 2 Nos. 350mm DIA. V.J FLANGE ADAPTOR
 - ⑪ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 - ⑫ 2 Nos. 350mm DIA. V.J STEPPED COUPLING

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- PROPOSED WATER MAIN
 - - - EXISTING WATER MAIN
 - V.J. VIKING JOHNSON
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - SV-01 SECTIONAL VALVE & No.
 - WO-01 WASHOUT VALVE & No.
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - WM WATER METER
 - [] PROPOSED MASONRY CHAMBER
 - PROPOSED VALVE BOX

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

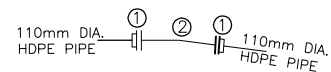
CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:
LINE NM19 FITTING DETAILS SHEET 3 OF 3

Designed by: S.C.K	Drawn by: S.C.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM19/03	REV. 0

CH. 0+017.68, 0+037.93, 0+089.24, 0+135.21, 0+167.93,
0+261.99, 0+325.76 & 0+417.12

DETAIL LINE NM20a - 11.25° H.BEND



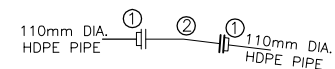
DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+109.14, 0+362.18 & 0+459.13

DETAIL LINE NM20a - 22.5° H.BEND



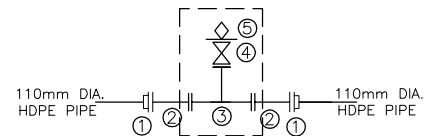
DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+120.00

DETAIL LINE NM20a - TEE & SAV - 01



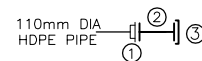
DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100x50mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑤ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

CH. 0+683.04

DETAIL NM20a - BLANK FLANGE



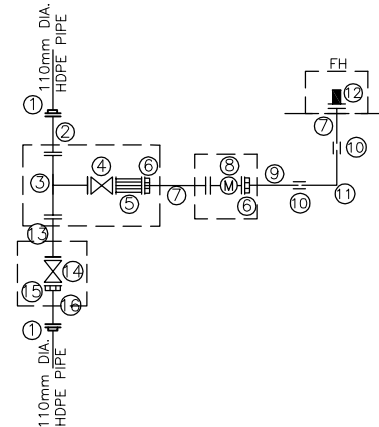
DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

CH. 0+200.00 & 0+600.00

DETAIL LINE NM20a - GV, WM & FH - 01 & 02



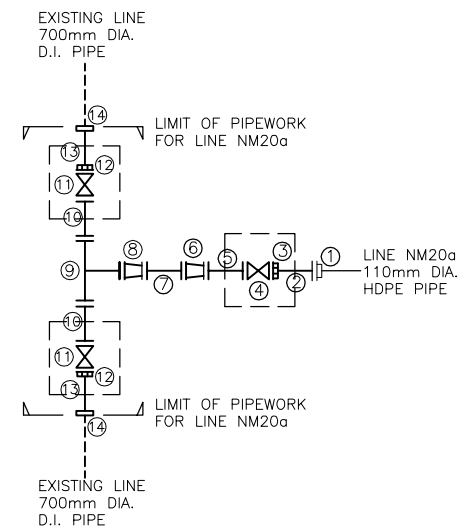
DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

CH. 0+000.00

DETAIL LINE NM20a - INTERCONNECTION



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑧ 1 No. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑨ 1 No. 700x350mm DIA. ALL FLANGED FERROUS TEE
- ⑩ 2 Nos. 700mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑪ 2 Nos. 700mm DIA. ALL FLANGED GATE VALVE
- ⑫ 2 Nos. 700mm DIA. V.J FLANGE ADAPTOR
- ⑬ 2 Nos. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑭ 2 Nos. 700mm DIA. V.J STEPPED COUPLING

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- V.J. VIKING JOHNSON
- GV GATE VALVE
- FH FIRE HYDRANT
- WO-01 WASHOUT VALVE & No.
- SAV-01 SINGLE ORIFICE AIR VALVE & No.
- WM WATER METER
- [] PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

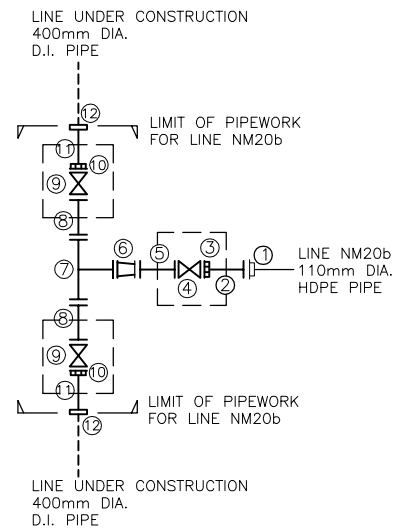
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

LINE NM20a FITTING DETAILS SHEET 2 OF 2

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM20a/02	REV. 0

DETAIL CH. 0+000.00
LINE NM20b - INTERCONNECTION



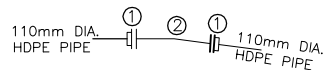
DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 400x200mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 2 Nos. 400mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ⑨ 2 Nos. 400mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 400mm DIA. V.J FLANGE ADAPTOR
- ⑪ 2 Nos. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 400mm DIA. V.J STEPPED COUPLING

CH. 0+051.35, 0+287.64, 0+416.12, 0+460.89, 0+658.47 & 0+775.87

DETAIL LINE NM20b - 11.25° H.BEND



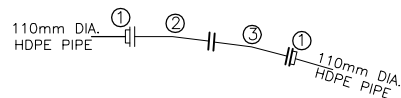
DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+370.76

DETAIL LINE NM20b - 22.5° & 11.25° H.BEND

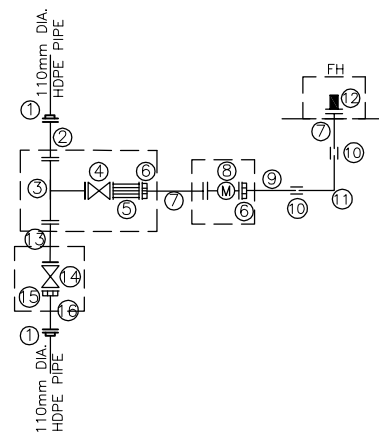


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
- ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+320.00 & 0+700.00
LINE NM20b - GV, WM & FH - 01 & 02



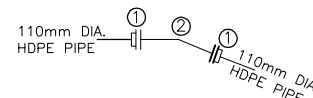
DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

CH. 0+534.22

DETAIL LINE NM20b - 30° H.BEND



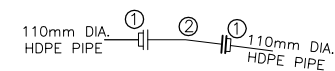
DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND

CH. 0+557.35, 0+714.93 & 0+857.88

DETAIL LINE NM20b - 22.5° H.BEND



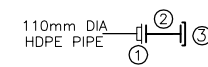
DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

CH. 0+965.50

DETAIL NM20b - BLANK FLANGE



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTER (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. BLANK FLANGE

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. MINIMUM PIPELINE SLOPES TO BE 1:500
5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

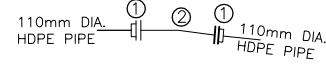
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

LINE NM20b FITTING DETAILS SHEET 2 OF 2

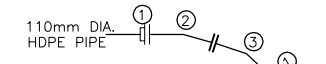
Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM20b/02	REV. 0

DETAIL CH. 0+035.42, 0+083.65, 0+192.46 & 0+429.27
LINE NM21 - 11.25° H.BEND



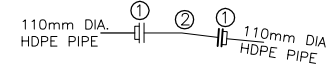
- DESCRIPTION**
4 Nos. REQUIRED
- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+109.05
LINE NM21 - 45° & 30° H.BEND



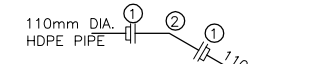
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. 45° ALL FLANGED FERROUS BEND
 - ③ 1 No. 100mm DIA. 30° ALL FLANGED FERROUS BEND

DETAIL CH. 0+157.65
LINE NM21 - 22.5° H.BEND



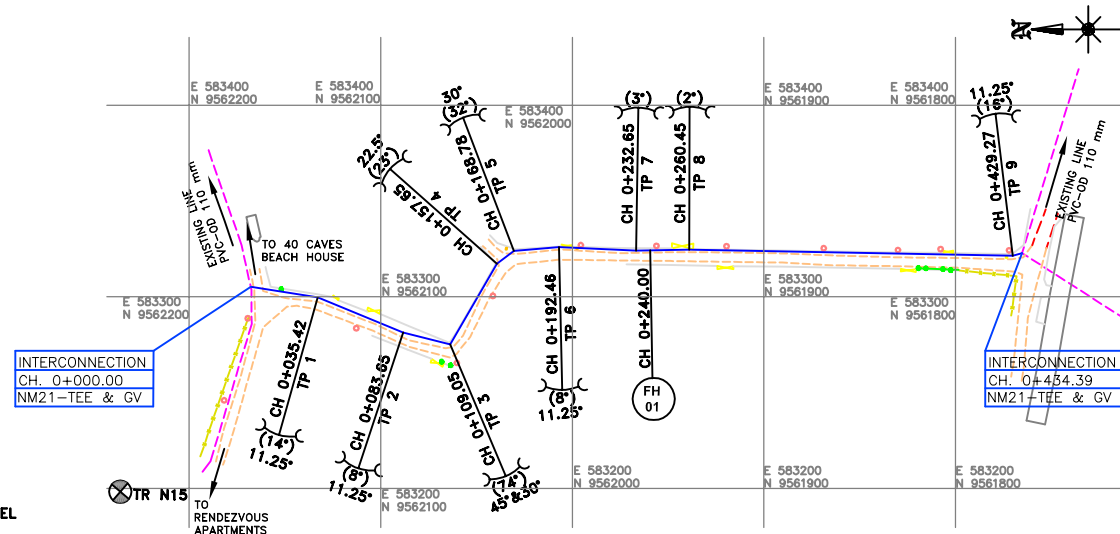
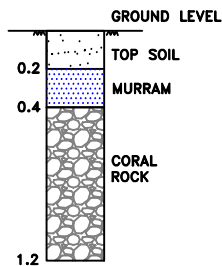
- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+168.78
LINE NM21 - 30° H.BEND

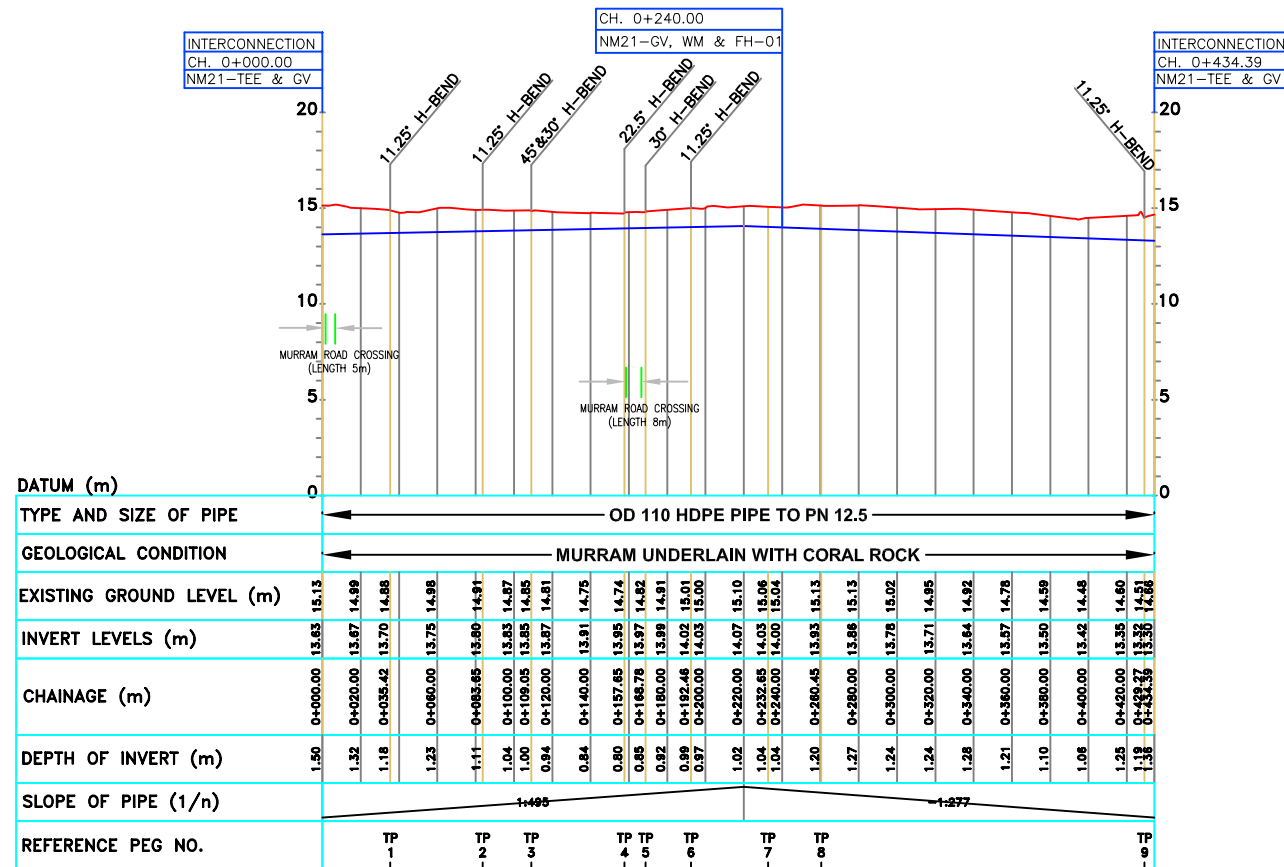


- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. 30° ALL FLANGED FERROUS BEND

TRIAL HOLE TR N15 DETAILS

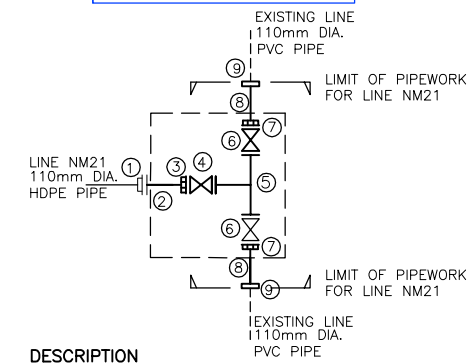


PLAN



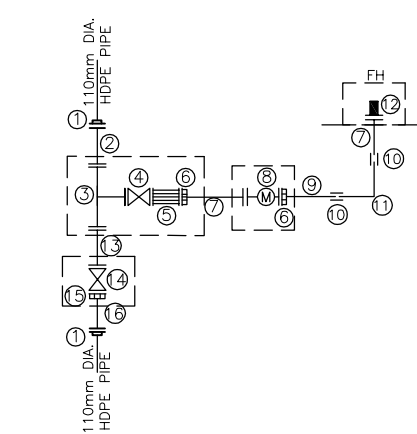
LONGITUDINAL SECTION

DETAIL CH. 0+000.00 & 0+434.39
LINE NM21 - INTERCONNECTION



- DESCRIPTION**
2 Nos. REQUIRED
- ① 1 No. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 - ③ 1 No. 100mm DIA. FLANGE ADAPTOR
 - ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 100x100mm DIA. ALL FLANGED FERROUS TEE
 - ⑥ 2 Nos. 100mm DIA. ALL FLANGED GATE VALVE
 - ⑦ 2 Nos. 100mm DIA. FLANGE ADAPTOR
 - ⑧ 2 Nos. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
 - ⑨ 2 Nos. 100mm DIA. V.J. STEPPED COUPLING

DETAIL CH. 0+240.00
LINE NM21 - GV, WM & FH - 01



- DESCRIPTION**
1 No. REQUIRED
- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
 - ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
 - ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
 - ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
 - ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
 - ⑥ 2 Nos. 80mm DIA. V.J. FLANGE ADAPTOR
 - ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
 - ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
 - ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
 - ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
 - ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
 - ⑫ 1 No. 80mm DIA. FIRE HYDRANT
 - ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
 - ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
 - ⑮ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
 - ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - 11 --- CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - ⊗ TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - V.J. VIKING JOHNSON
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

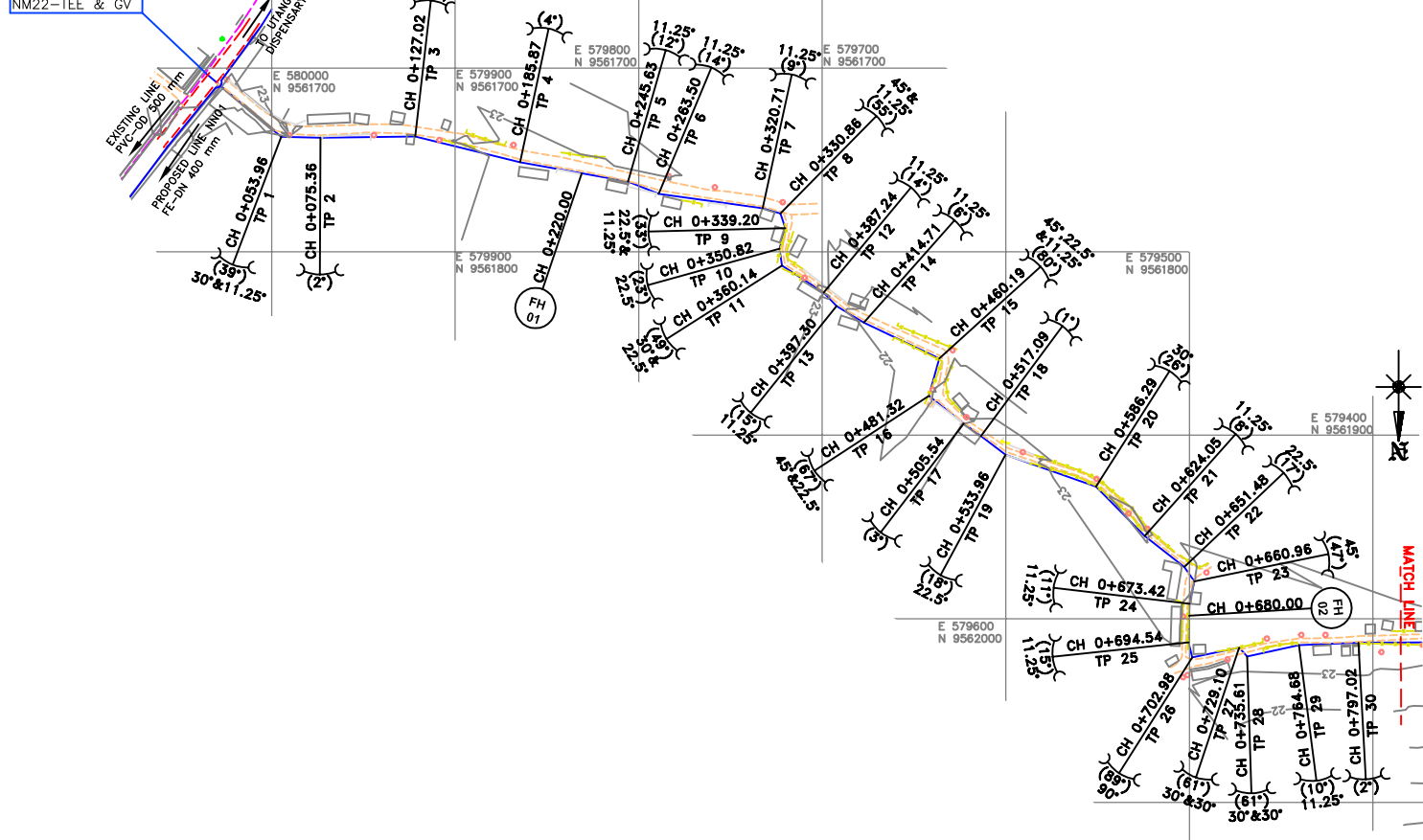
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

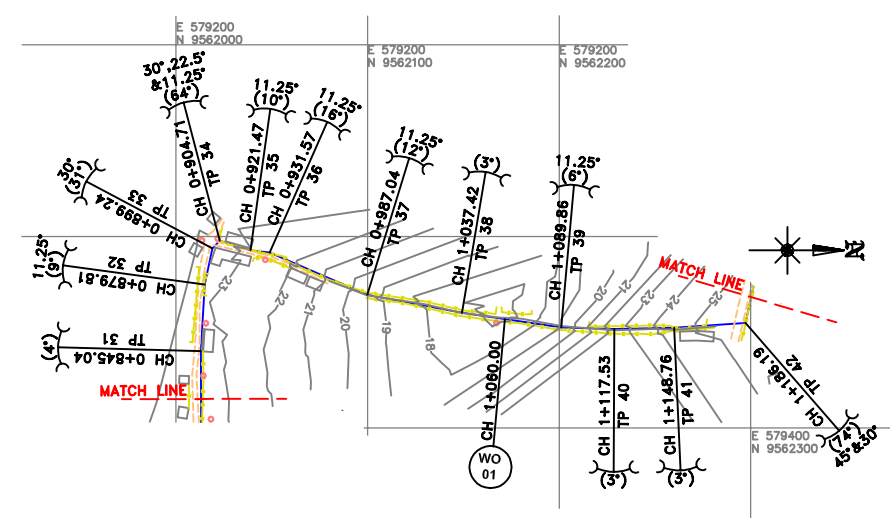
DRAWING TITLE:
**LINE NM21
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 0+434.39)
 SHEET 1 OF 1**

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM21/01	REV. 0

INTERCONNECTION
CH. 0+000.00
NM22-TEE & GV



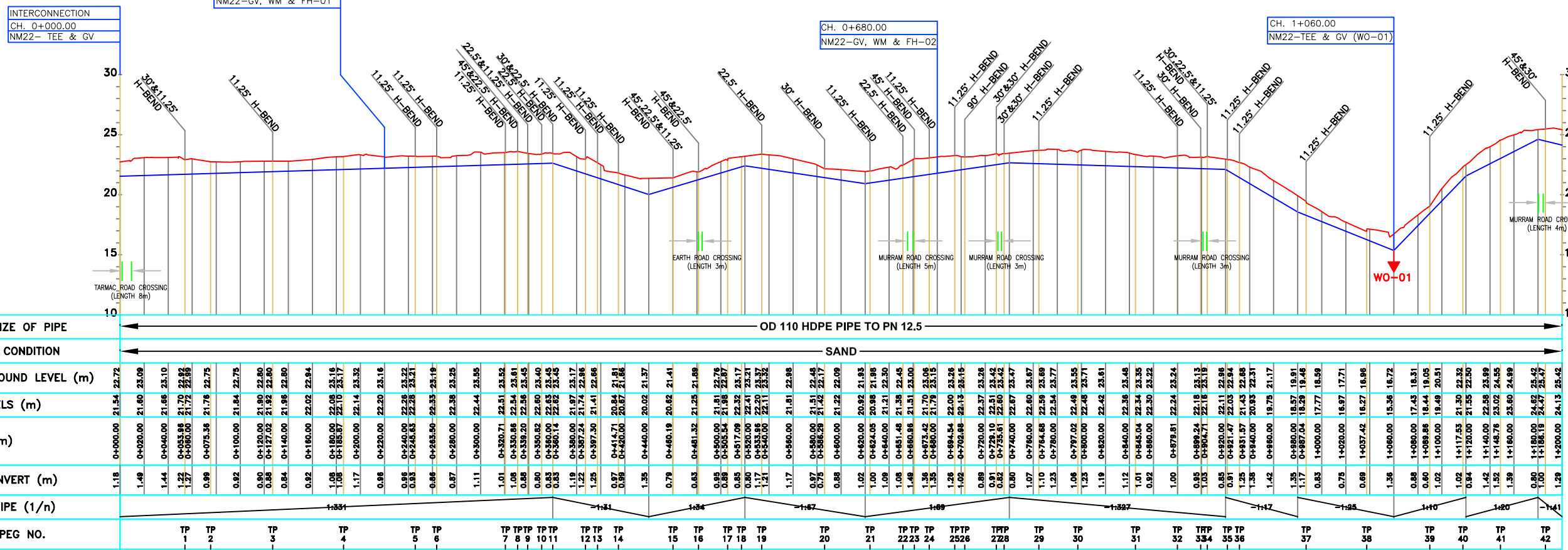
PLAN



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WO-01 WASHOUT VALVE & No.
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL

INTERCONNECTION
CH. 0+000.00
NM22- TEE & GV



LONGITUDINAL SECTION

REVISIONS	SIGN	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

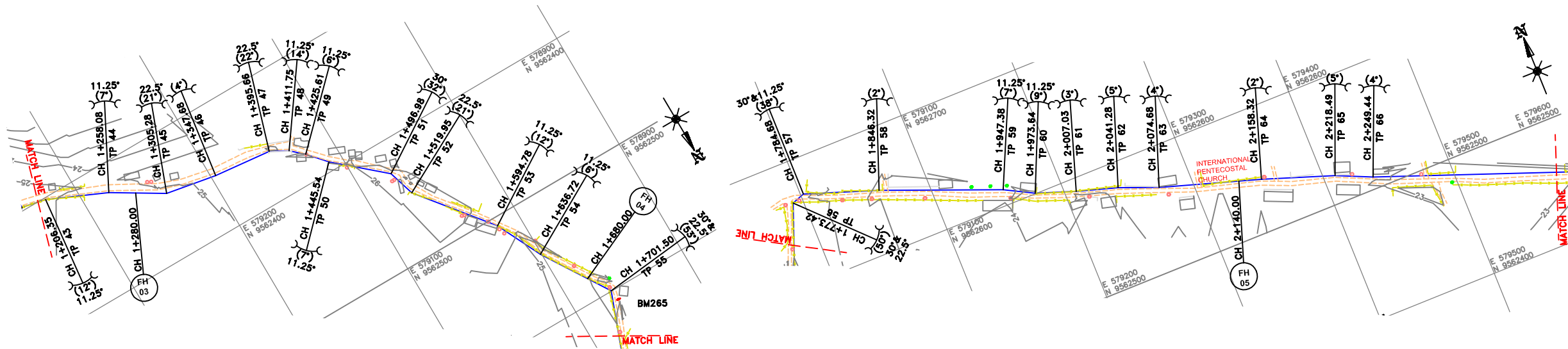
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM22
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 5**

Designed by: T.K.N | Drawn by: M.M.M
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/MO/NM/NM22/01** | REV. 0

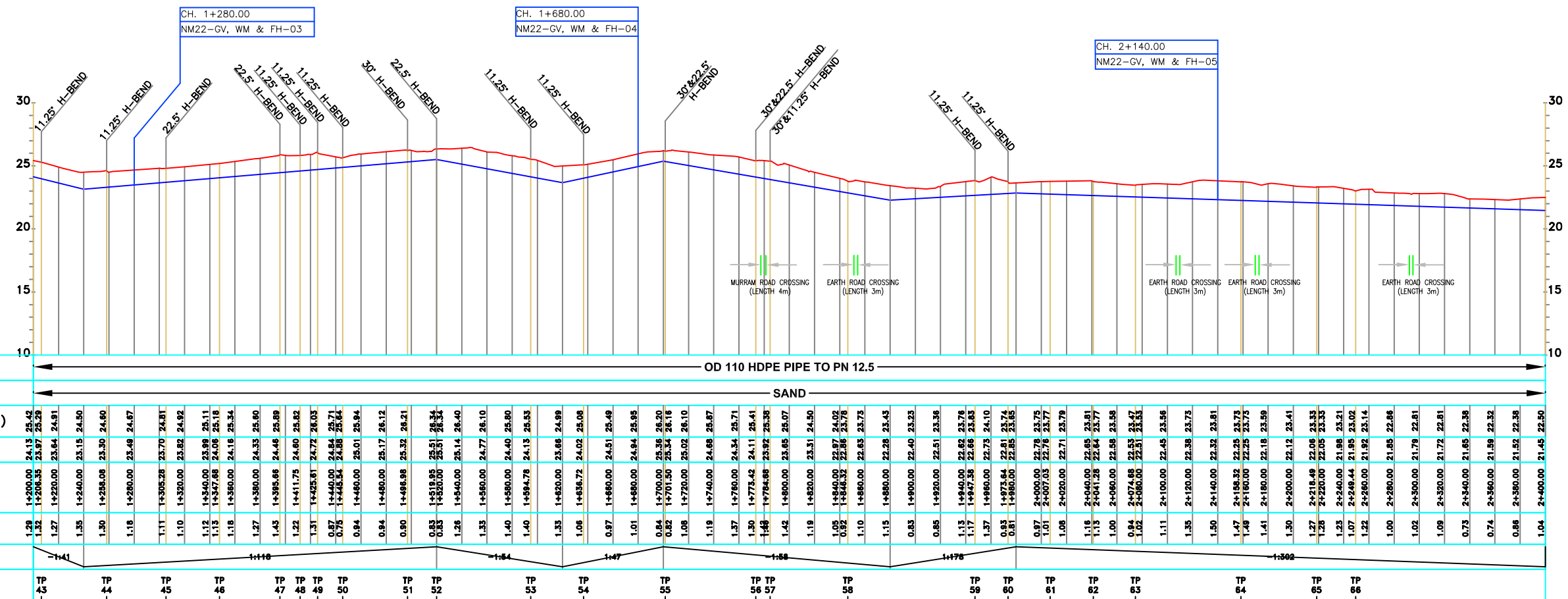


PLAN

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - THE SURVEY WAS BASED ON THE DATUM BM265 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM265	578.963.15	9,562,608.61	26.02

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (Concrete with Iron Pin)



LONGITUDINAL SECTION

REVISIONS

NO.	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

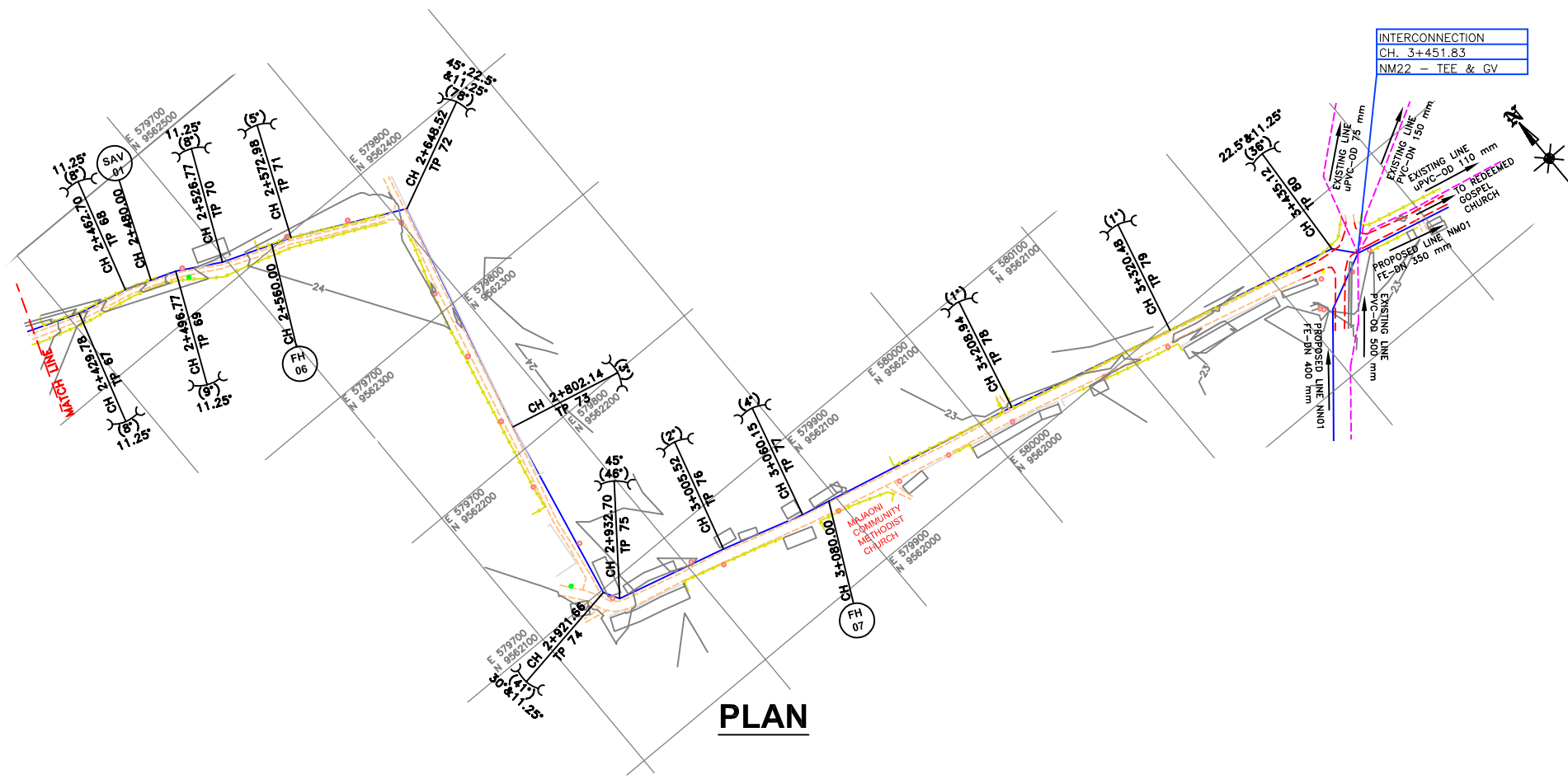
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM22 PLAN & LONGITUDINAL SECTION (CH 1+200.00 - 2+400.00) SHEET 2 OF 5

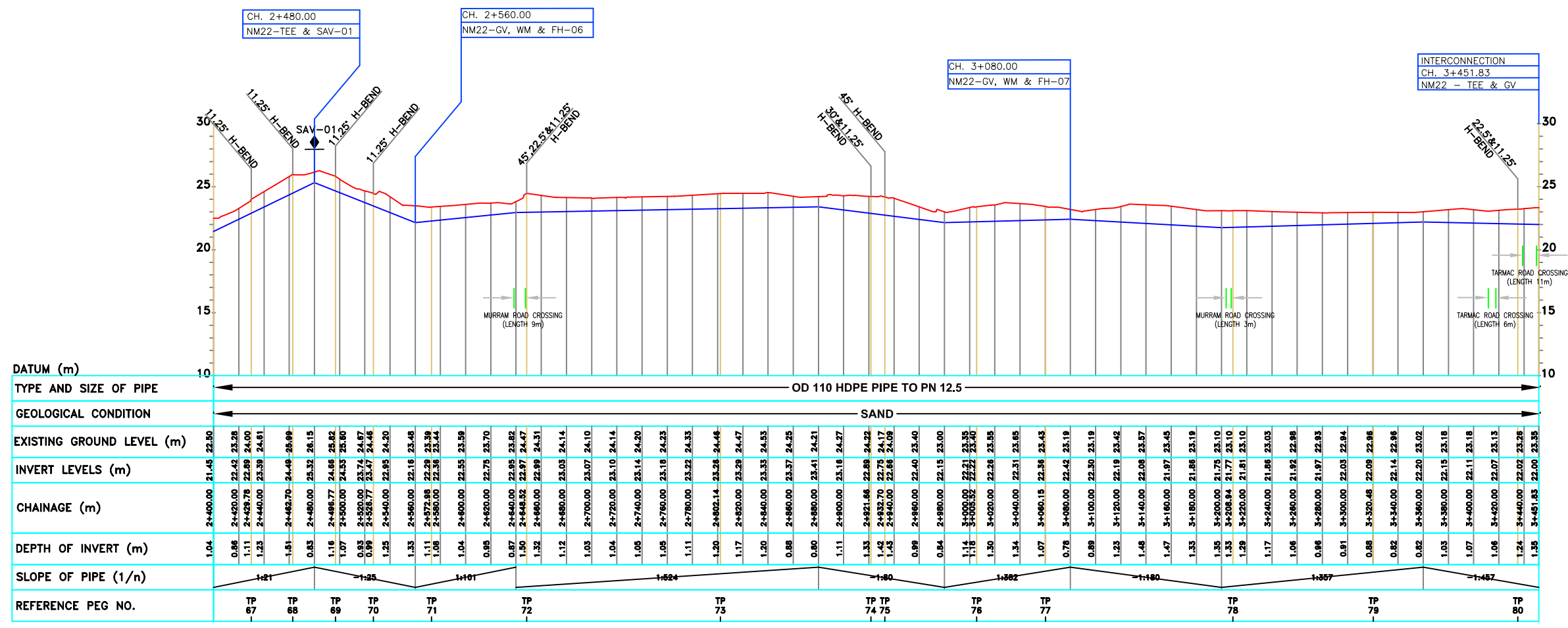
Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H-1:4000, V-1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM22/02	REV. 0



PLAN

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - SAV-01 SINGLE AIR VALVE & No.
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL



LONGITUDINAL SECTION

REVISIONS			
NO.	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

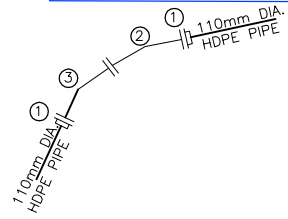
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM22
 PLAN & LONGITUDINAL SECTION
 (CH 2+400.00 - 3+451.83)
 SHEET 3 OF 5**

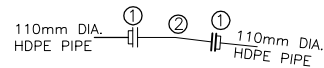
Designed by: T.K.N | Drawn by: M.M.M
 Checked by: E.I.M | Approved by: R.S.R
 Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020
 DRG No. **M410/MO/MO/NM22/03** | REV. 0

DETAIL CH. 0+053.96, 1+784.68 & 2+921.66
NM22 - 30° & 11.25° H.BEND



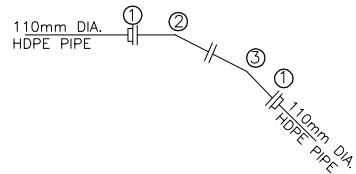
DESCRIPTION
3 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
 ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

CH. 0+127.02, 0+245.63, 0+263.50, 0+320.71, 0+387.24, 0+397.30,
 0+414.71, 0+624.05, 0+673.42, 0+694.54, 0+764.68, 0+879.81,
 0+921.47, 0+931.57, 0+987.04, 1+089.86, 1+206.35, 1+258.08,
 1+411.75, 1+425.61, 1+445.54, 1+594.78, 1+636.72, 1+947.38,
 1+973.64, 2+429.78, 2+462.70, 2+496.77 & 2+526.77
DETAIL LINE NM22 - 11.25° H.BEND



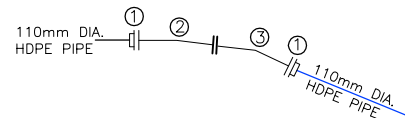
DESCRIPTION
29 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+330.86
LINE NM22 - 45° & 11.25° H.BEND



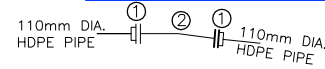
DESCRIPTION
1 No. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND
 ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+339.20 & 3+435.12
LINE NM22 - 22.5° & 11.25° H.BEND



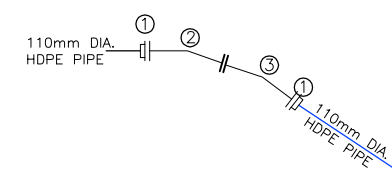
DESCRIPTION
2 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND
 ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+350.82, 0+533.96, 0+651.48, 1+305.28,
 1+395.66 & 1+519.95
LINE NM22 - 22.5° H.BEND



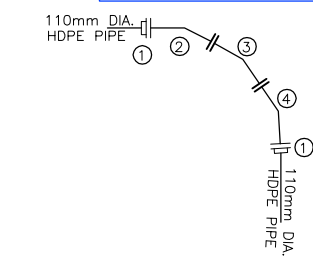
DESCRIPTION
6 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+360.14, 1+701.50 & 1+773.42
LINE NM22 - 30° & 22.5° H.BEND



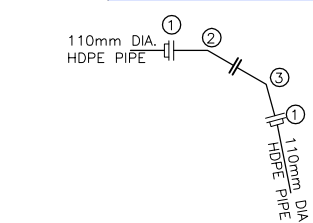
DESCRIPTION
3 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 30° BEND
 ③ 1 No. 100mm DIA. ALL FLANGED FERROUS 22.5° BEND

DETAIL CH. 0+460.19 & 2+648.52
LINE NM22 - 45°, 22.5° & 11.25° H.BEND



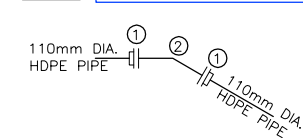
DESCRIPTION
2 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 45° ALL FLANGED FERROUS BEND
 ③ 1 No. 100mm DIA. 22.5° ALL FLANGED FERROUS BEND
 ④ 1 No. 100mm DIA. 11.25° ALL FLANGED FERROUS BEND

DETAIL CH. 0+481.32
LINE NM22 - 45° & 22.5° H.BEND



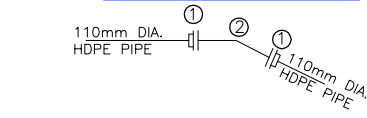
DESCRIPTION
1 No. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 45° ALL FLANGED FERROUS BEND
 ③ 1 No. 100mm DIA. 22.5° ALL FLANGED FERROUS BEND

DETAIL CH. 0+586.29, 0+899.24 & 1+496.98
LINE NM22 - 30° H.BEND



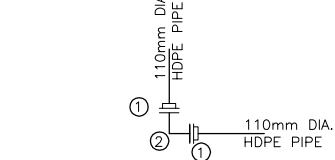
DESCRIPTION
3 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 30° ALL FLANGED FERROUS BEND

DETAIL CH. 0+660.96 & 2+932.70
LINE NM22 - 45° H.BEND



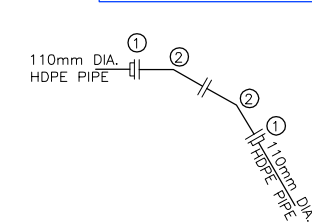
DESCRIPTION
2 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. P.E. FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. ALL FLANGED FERROUS 45° BEND

DETAIL CH. 0+702.98
LINE NM22 - 90° BEND



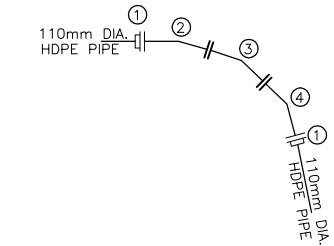
DESCRIPTION
1 No. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 90° ALL FLANGED FERROUS BEND

DETAIL CH. 0+729.10 & 0+735.61
LINE NM22 - 30° & 30° H.BEND



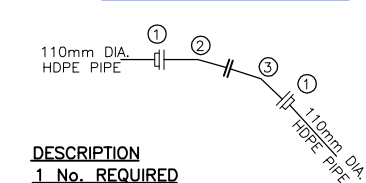
DESCRIPTION
2 Nos. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 2 Nos. 100mm DIA. 30° ALL FLANGED FERROUS BEND

DETAIL CH. 0+904.71
LINE NM22 - 30°, 22.5° & 11.25° H.BEND



DESCRIPTION
1 No. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 30° ALL FLANGED FERROUS BEND
 ③ 1 No. 100mm DIA. 22.5° ALL FLANGED FERROUS BEND
 ④ 1 No. 100mm DIA. 11.25° ALL FLANGED FERROUS BEND


DETAIL CH. 1+186.19
LINE NM22 - 45° & 30° H.BEND




DESCRIPTION
1 No. REQUIRED
 ① 2 Nos. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
 ② 1 No. 100mm DIA. 45° ALL FLANGED FERROUS BEND
 ③ 1 No. 100mm DIA. 30° ALL FLANGED FERROUS BEND

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. MINIMUM PIPELINE SLOPES TO BE 1:500
 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:
 **COAST WATER WORKS DEVELOPMENT AGENCY**
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
 **MIBP MANGAT I.B. PATEL (MIBP) LIMITED**
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

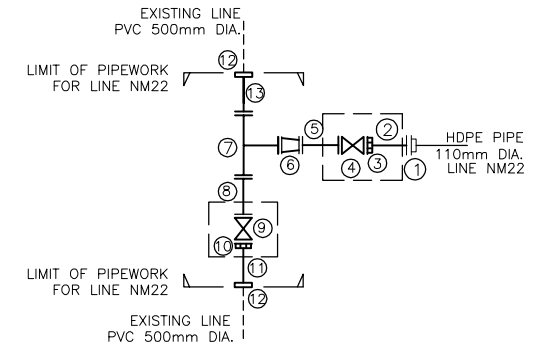
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
LINE NM22 FITTING DETAILS SHEET 4 OF 5

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM22/04	REV. 0

DETAIL CH. 0+000.00
LINE NM22 - INTERCONNECTION



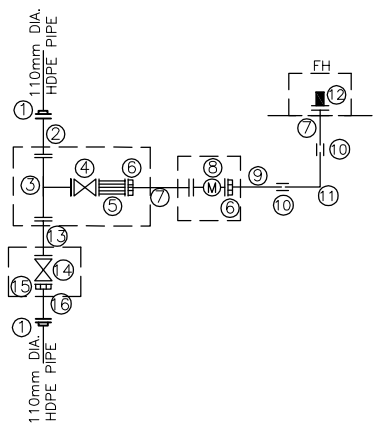
DESCRIPTION

1 No. REQUIRED

- ① 1 No. 110mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 100mm DIA. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 250x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 500x250mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 1 No. 500mm DIA. ALL FLANGED FERROUS PIPE 2000mm LONG
- ⑨ 1 No. 500mm DIA. ALL FLANGED GATE VALVE
- ⑩ 1 No. 500mm DIA. V.J FLANGE ADAPTOR
- ⑪ 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑫ 2 Nos. 500mm DIA. V.J STEPPED COUPLING
- ⑬ 1 No. 500mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG

CH. 0+220.00, 0+680.00, 1+280.00, 1+680.00,
2+140.00, 2+560.00 & 3+080.00

DETAIL LINE NM22 - GV, WM & FH -01, 02, 03, 04, 05, 06 & 07

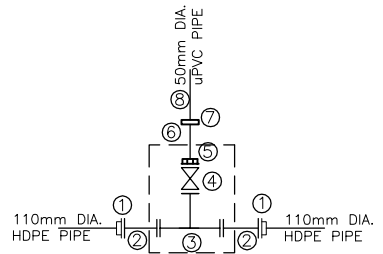


DESCRIPTION

7 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 100x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑭ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 100mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 1+060.00
LINE NM22 -TEE & GV (WO) -01

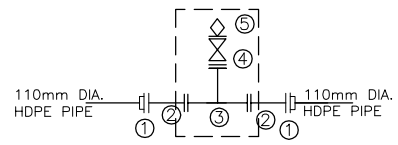


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100x50mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 50mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 50mm DIA. V.J FLANGE ADAPTOR
- ⑥ 1 No. 50mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 50mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 50mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

CH. 2+480.00
DETAIL LINE NM22 -TEE & SAV-01



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 100x50mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑤ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- 7. FOR FITTING DETAILS AT CH. 3+451.83 SEE DWG NO. M410/MO/NM/NM01/03 AT CH. 0+000.00

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

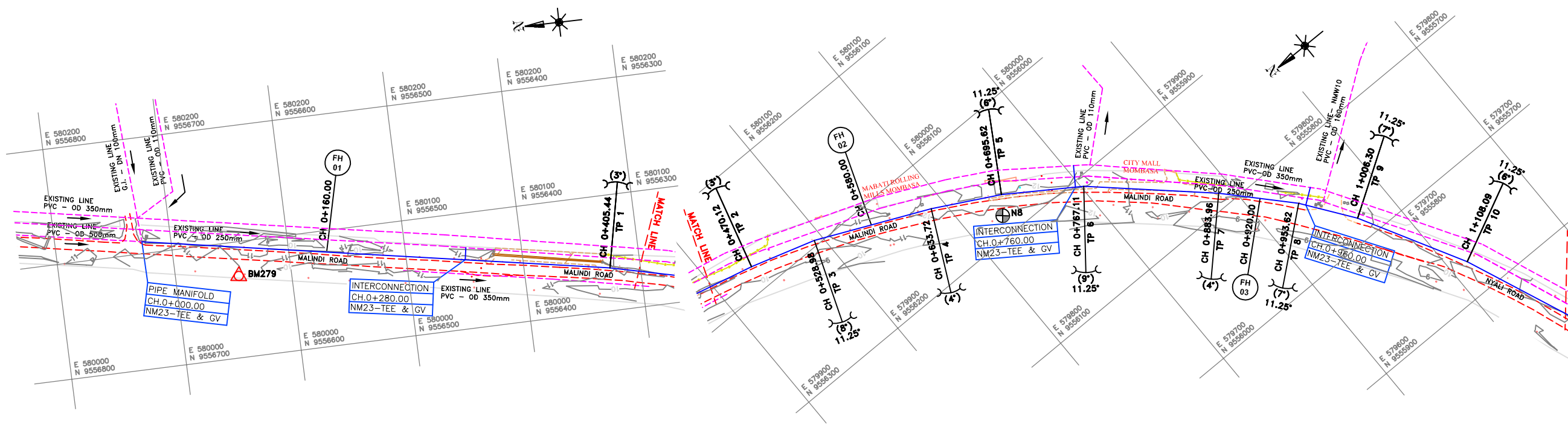
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

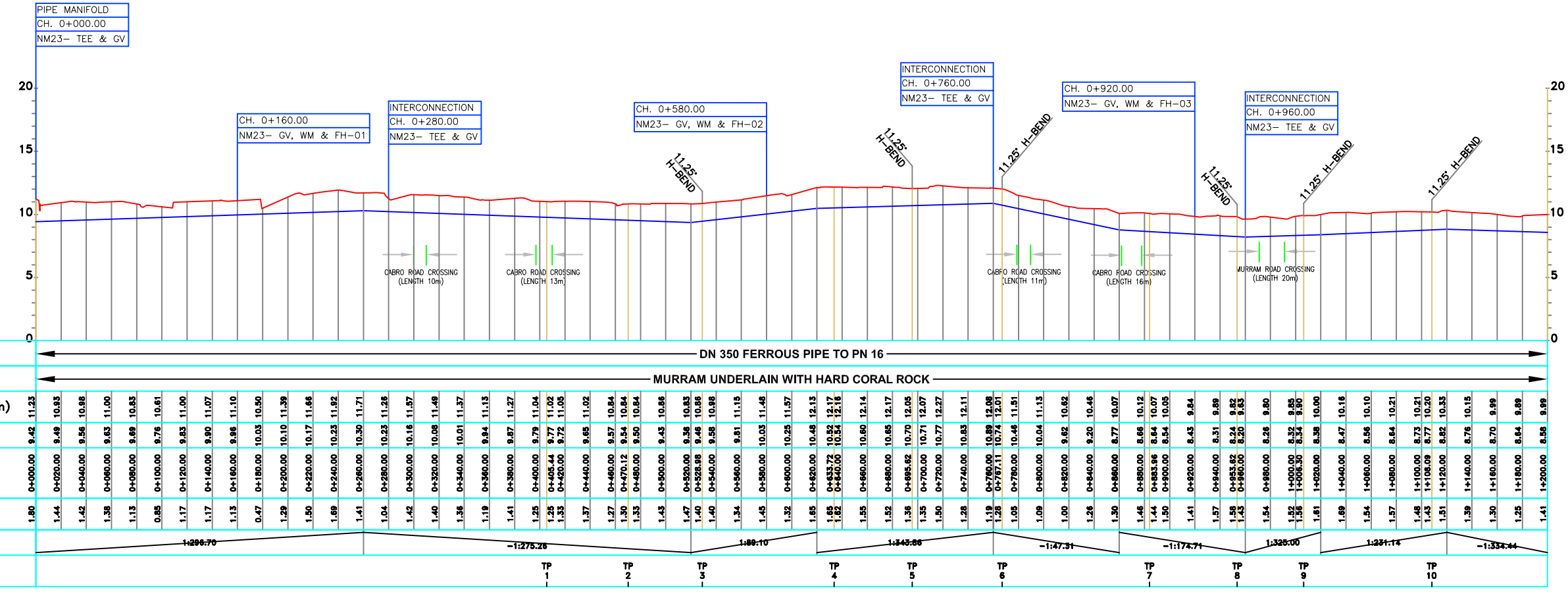
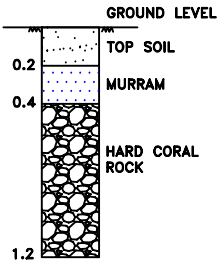
DRAWING TITLE:
LINE NM22 FITTING DETAILS SHEET 5 OF 5

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM22/05	REV. 0



PLAN

TRIAL HOLE NB DETAILS



LONGITUDINAL SECTION

NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- THE SURVEY WAS BASED ON THE DATUM BM279 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM279	580,070.48	9,556,645.44	11.86

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GV GATE VALVE
- FH FIRE HYDRANT
- D.I. DUCTILE IRON
- DAV-01 DOUBLE ORIFICE AIR VALVE & No.
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- BENCHMARK (CONCRETE WITH IRON PIN)

REVISIONS			
NO.	BY	DATE	APPROVED

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

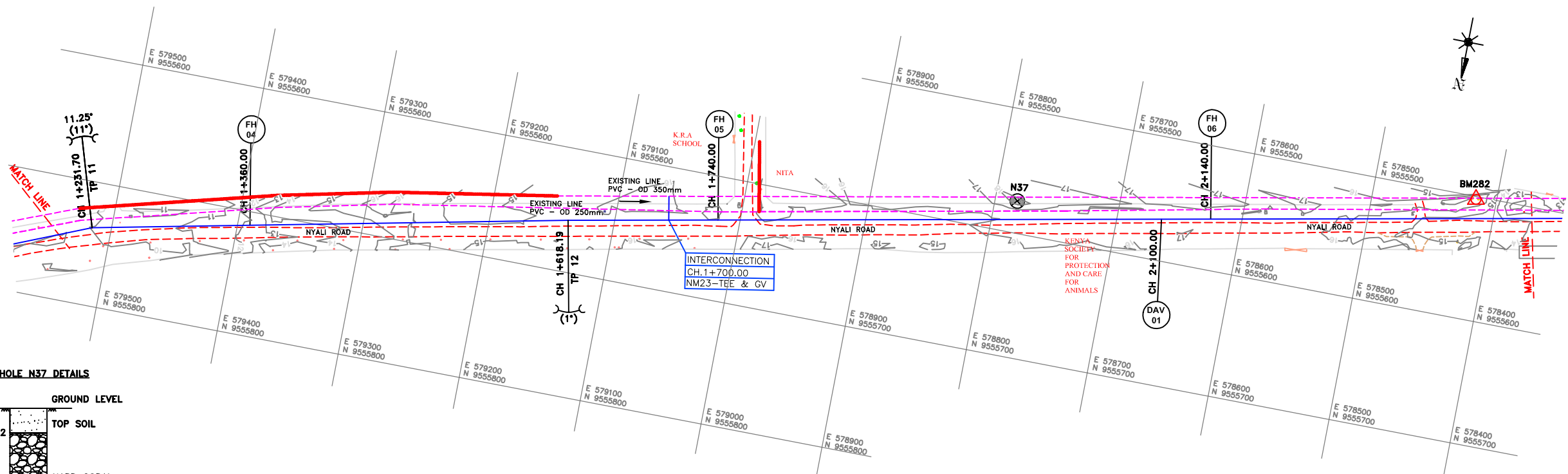
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM23
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 5**

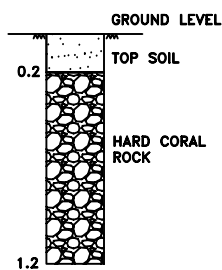
Designed by: T.K.N Drawn by: V.G.K
 Checked by: E.I.M Approved by: R.S.R
 Scale: H-1:4000, V-1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM23/01** REV. 0

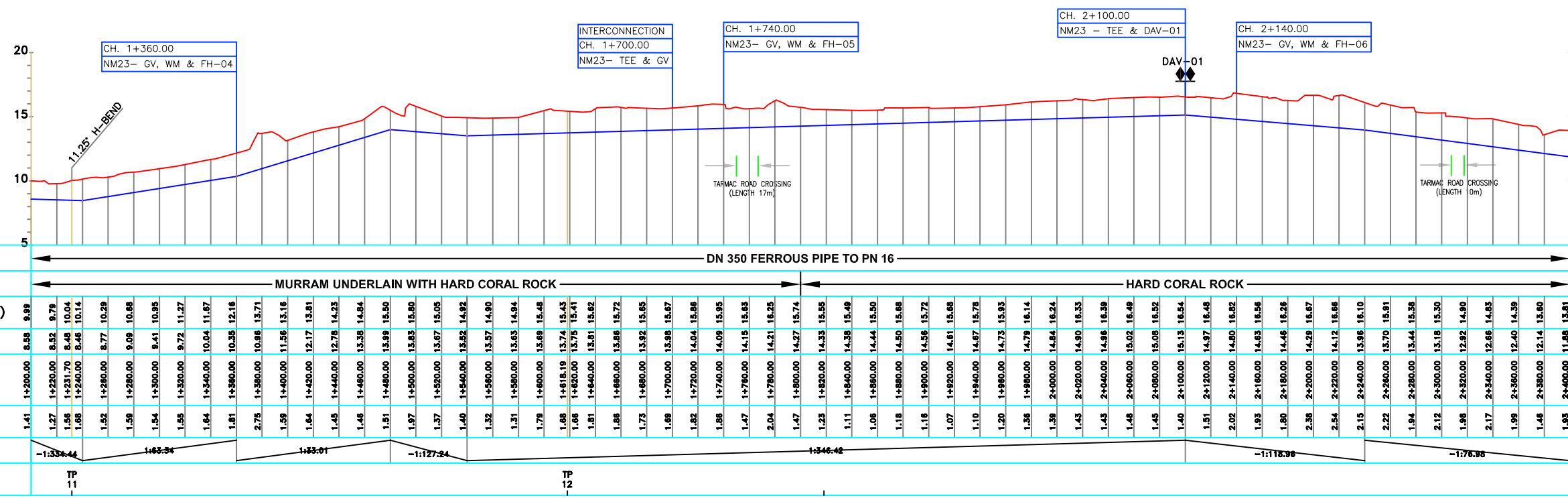


PLAN

TRIAL HOLE N37 DETAILS



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - THE SURVEY WAS BASED ON THE DATUM BM282 WITH THE FOLLOWING COORDINATES AND ELEVATION.
- | BENCHMARK REF No. | EASTING | NORTHING | ELEVATION |
|-------------------|------------|--------------|-----------|
| BM282 | 578,416.60 | 9,555,502.36 | 16.82 |
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - DAV-01 DOUBLE ORIFICE AIR VALVE & No.
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)



LONGITUDINAL SECTION

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

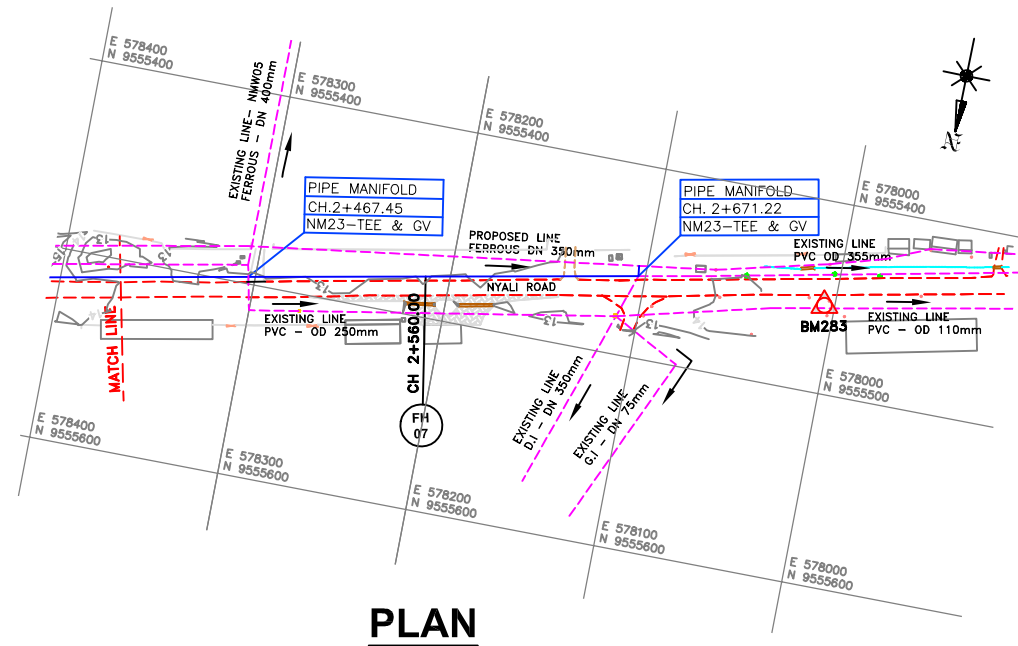
CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

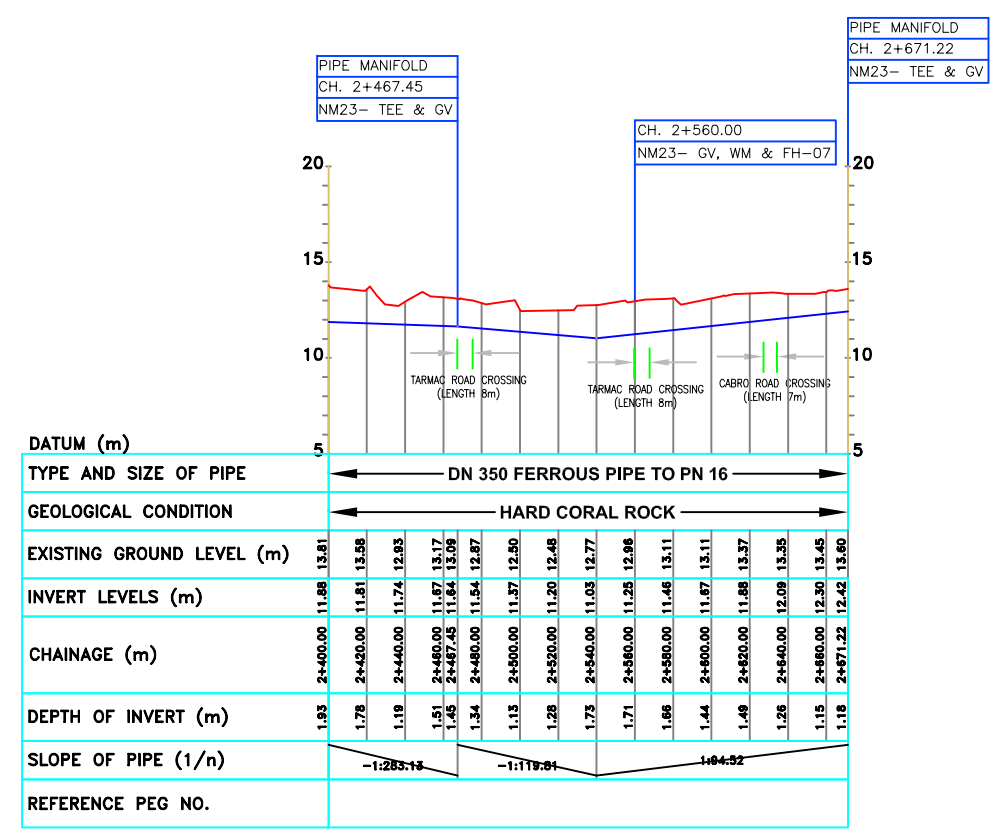
DRAWING TITLE:
**LINE NM23
 PLAN & LONGITUDINAL SECTION
 (CH 1+200.00 - 2+400.00)
 SHEET 2 OF 5**

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020

DRG No. **M410/M0/NM/NM23/02** REV. 0



PLAN



LONGITUDINAL SECTION

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - DRAWINGS TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - THE SURVEY WAS BASED ON THE DATUM BM283 WITH THE FOLLOWING COORDINATES AND ELEVATION.
- | BENCHMARK REF No. | EASTING | NORTHING | ELEVATION |
|-------------------|------------|--------------|-----------|
| BM283 | 576,005.23 | 9,555,453.45 | 14.14 |
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - D.I. DUCTILE IRON
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (CONCRETE WITH IRON PIN)

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM23
 PLAN & LONGITUDINAL SECTION
 (CH 2+400.00 - 2+671.22)
 SHEET 3 OF 5**

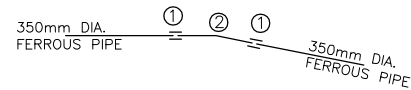
Designed by: T.K.N | Drawn by: V.G.K

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. **M410/M0/NM/NM23/03** | REV. 0

DETAIL CH. 0+528.98, 0+695.62, 0+767.11, 0+953.62, 1+006.30, 1+108.09 & 1+231.70
LINE NM23 - 11.25° H.BEND

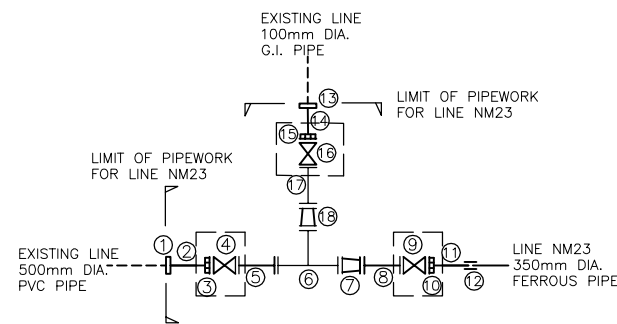


DESCRIPTION

7 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. COUPLING
- ② 1 No. 350mm DIA. PLAIN ENDED FERROUS 11.25° BEND

DETAIL CH. 0+000.00
NM23 - PIPE MANIFOLD

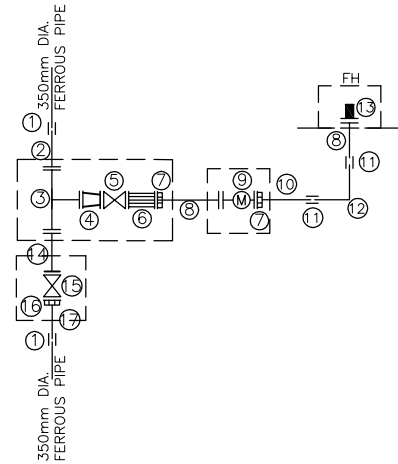


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 500mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 1 No. 500mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 500mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 500mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 500x250mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 1 No. 500x350mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑧ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑨ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑩ 1 No. 350mm DIA. V.J. FLANGE ADAPTOR
- ⑪ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑫ 1 No. 350mm DIA. V.J. COUPLING
- ⑬ 1 No. 100mm DIA. V.J. STEPPED COUPLING
- ⑭ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑮ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
- ⑯ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑰ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑱ 1 No. 250x100mm DIA. ALL FLANGED CONCENTRIC TAPER

DETAIL CH. 0+160.00, 0+580.00, 0+920.00, 1+360.00, 1+740.00, 2+140.00 & 2+560.00
LINE NM23 - GV, WM & FH - 01, 02, 03, 04, 05, 06 & 07

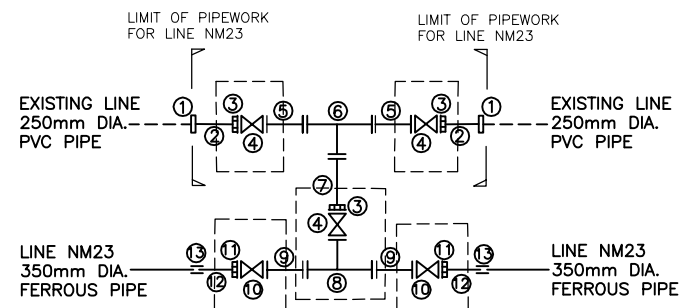


DESCRIPTION

7 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. COUPLING
- ② 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ③ 1 No. 350x200mm DIA. ALL FLANGED TEE
- ④ 1 No. 200x80mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑥ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑦ 2 Nos. 80mm DIA. V.J. FLANGE ADAPTOR
- ⑧ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑨ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑩ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑪ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑫ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑬ 1 No. 80mm DIA. FIRE HYDRANT
- ⑭ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑮ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑯ 1 No. 350mm DIA. V.J. FLANGE ADAPTOR
- ⑰ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG

DETAIL CH. 0+280.00
NM23 - INTERCONNECTION

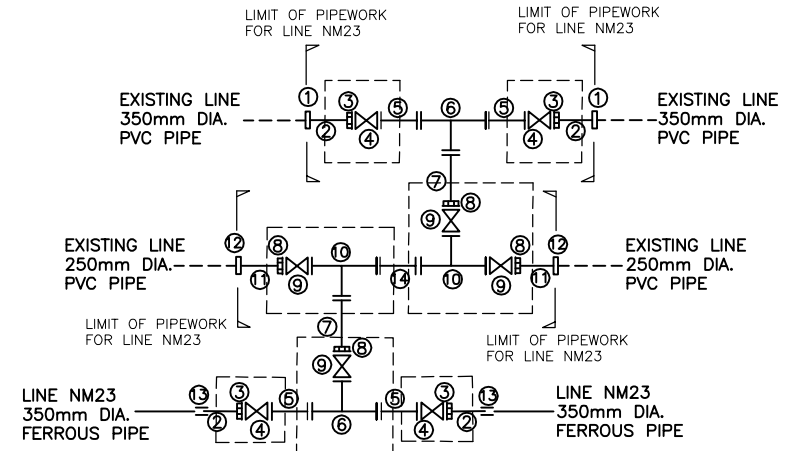


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 250mm DIA. V.J. STEPPED COUPLING
- ② 2 Nos. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 3 Nos. 250mm DIA. V.J. FLANGE ADAPTOR
- ④ 3 Nos. 250mm DIA. ALL FLANGED GATE VALVE
- ⑤ 2 Nos. 250mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 250x250mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 1 No. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 2.0m LONG
- ⑧ 1 No. 350x250mm DIA. ALL FLANGED FERROUS TEE
- ⑨ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑪ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ⑫ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑬ 2 Nos. 350mm DIA. V.J. COUPLING

DETAIL CH. 0+760.00, 0+960.00 & 1+700.00
NM23 - INTERCONNECTION

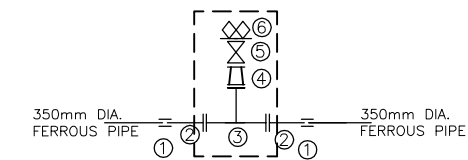


DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. STEPPED COUPLING
- ② 4 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 4 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 4 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 4 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 2 Nos. 350x250mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 2.0m LONG
- ⑧ 4 Nos. 250mm DIA. V.J. FLANGE ADAPTOR
- ⑨ 4 Nos. 250mm DIA. ALL FLANGED GATE VALVE
- ⑩ 2 Nos. 250x250mm DIA. ALL FLANGED FERROUS TEE
- ⑪ 2 Nos. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑫ 2 Nos. 250mm DIA. V.J. STEPPED COUPLING
- ⑬ 2 Nos. 350mm DIA. V.J. COUPLING
- ⑭ 1 No. 250mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG

DETAIL CH. 2+100.00
LINE NM23 - TEE & DAV - 01



DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. COUPLING
- ② 2 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 200x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑥ 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE

NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- V.J. VIKING JOHNSON
- GV GATE VALVE
- FH FIRE HYDRANT
- DAV-01 DOUBLE ORIFICE AIR VALVE & No.
- WM WATER METER
- [] PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:

LINE NM23 FITTING DETAILS SHEET 4 OF 5

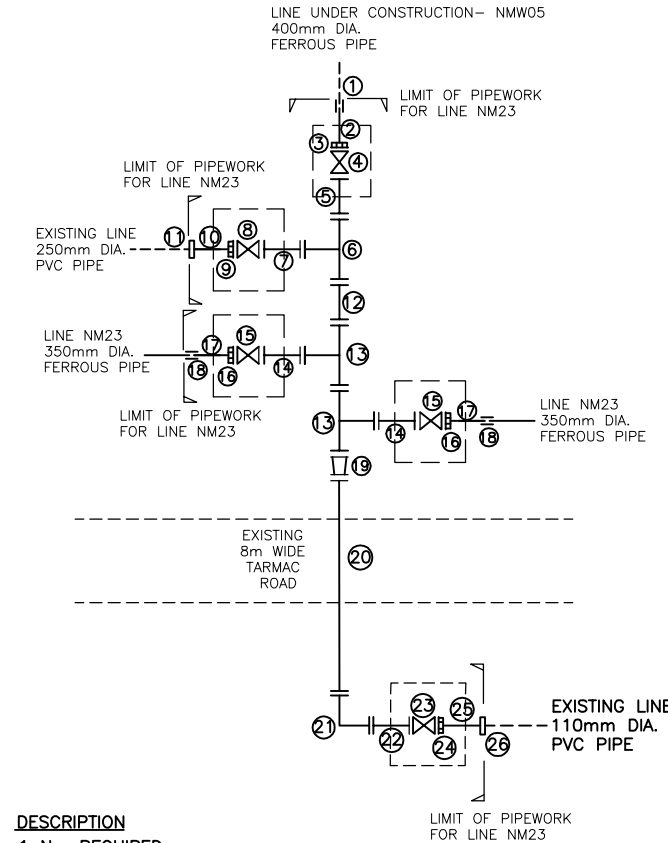
Designed by: T.K.N Drawn by: V.G.K

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/M0/NM/NM23/04** REV. 0

CH. 2+467.45
LINE NM23 - PIPE MANIFOLD

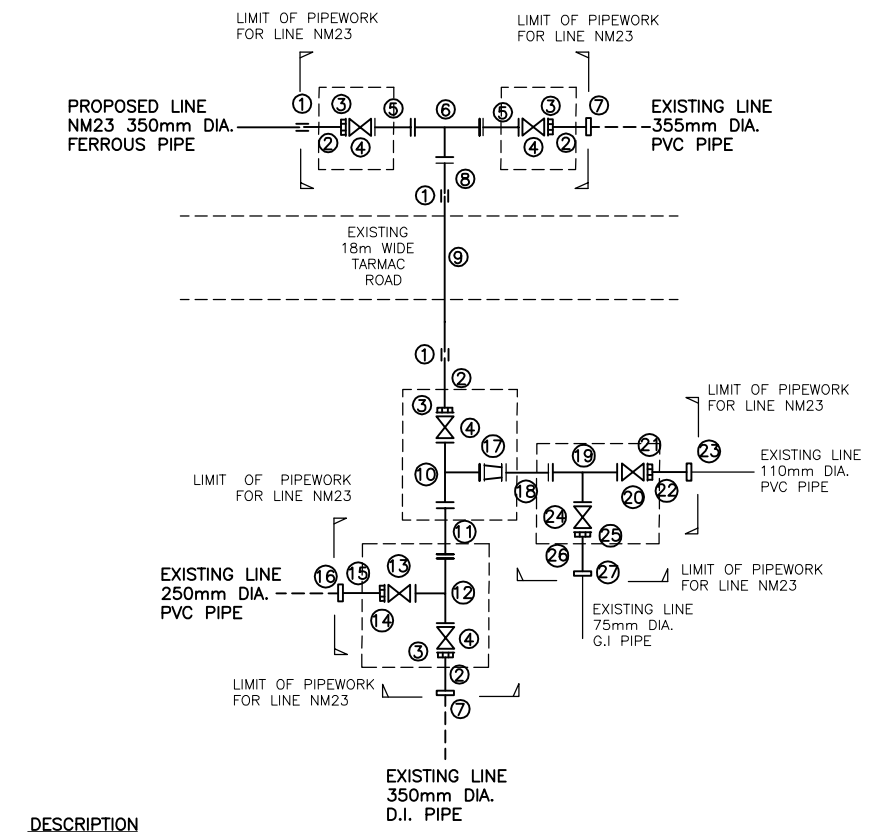


DESCRIPTION

1 No. REQUIRED

- ① 1 No. 400mm DIA. V.J. COUPLING
- ② 1 No. 400mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 1 No. 400mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 400mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 400mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 400x250mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 1 No. 250mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑧ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑨ 1 No. 250mm DIA. V.J. FLANGE ADAPTOR
- ⑩ 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑪ 1 No. 250mm DIA. V.J. STEPPED COUPLING
- ⑫ 1 No. 400mm DIA. ALL FLANGED FERROUS PIPE 2.0m LONG
- ⑬ 2 Nos. 400x350mm DIA. ALL FLANGED FERROUS TEE
- ⑭ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑮ 2 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑯ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ⑰ 2 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑱ 2 Nos. 350mm DIA. V.J. COUPLING
- ⑲ 1 No. 400x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑳ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 15m LONG
- ㉑ 1 No. 100mm DIA. ALL FLANGED FERROUS 90° BEND
- ㉒ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ㉓ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ㉔ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
- ㉕ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ㉖ 1 No. 100mm DIA. V.J. STEPPED COUPLING

CH. 2+671.22
NM23 - PIPE MANIFOLD



DESCRIPTION


1 No. REQUIRED

- ① 3 Nos. 350mm DIA. V.J. COUPLING
- ② 4 Nos. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 4 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 4 Nos. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 350x350mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 350mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑨ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 24m LONG
- ⑩ 1 No. 350x150mm DIA. ALL FLANGED FERROUS TEE
- ⑪ 1 No. 350mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑫ 1 No. 350x250mm DIA. ALL FLANGED FERROUS TEE
- ⑬ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑭ 1 No. 250mm DIA. V.J. FLANGE ADAPTOR
- ⑮ 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑯ 1 No. 250mm DIA. V.J. STEPPED COUPLING
- ⑰ 1 No. 150x100mm DIA. ALL FLANGED REDUCER
- ⑱ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑲ 1 No. 100x80mm DIA. ALL FLANGED FERROUS TEE
- ㉑ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ㉑ 1 No. 100mm DIA. V.J. FLANGE ADAPTOR
- ㉒ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 2m LONG
- ㉓ 1 No. 100mm DIA. V.J. STEPPED COUPLING
- ㉔ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ㉕ 1 No. 80mm DIA. V.J. FLANGE ADAPTOR
- ㉖ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 2m LONG
- ㉖ 1 No. 80mm DIA. V.J. STEPPED COUPLING

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

- LEGEND:**
- V.J. VIKING JOHNSON
 - GV GATE VALVE
 - D.I. DUCTILE IRON
 - [] PROPOSED MASONRY CHAMBER

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

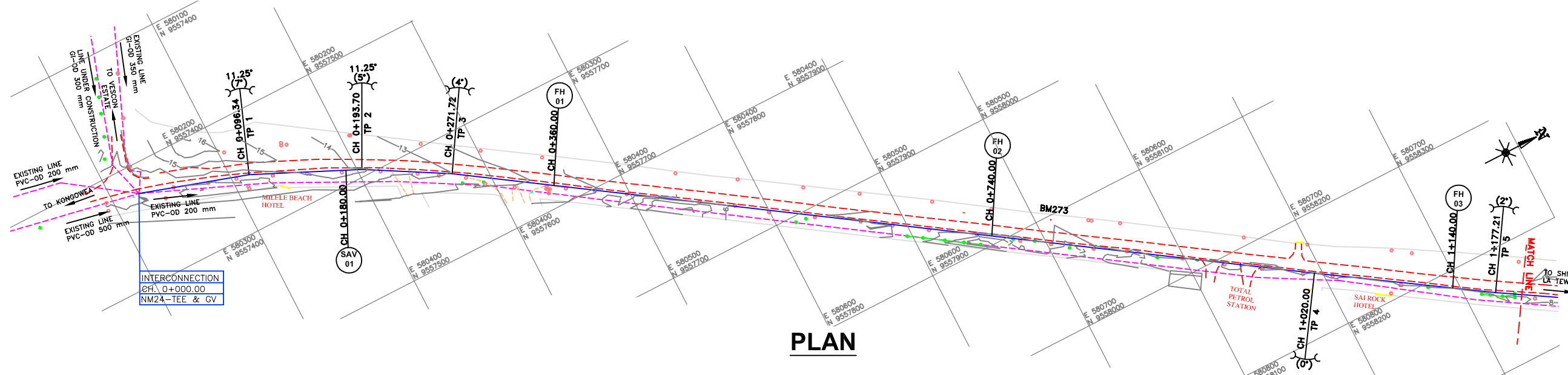
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

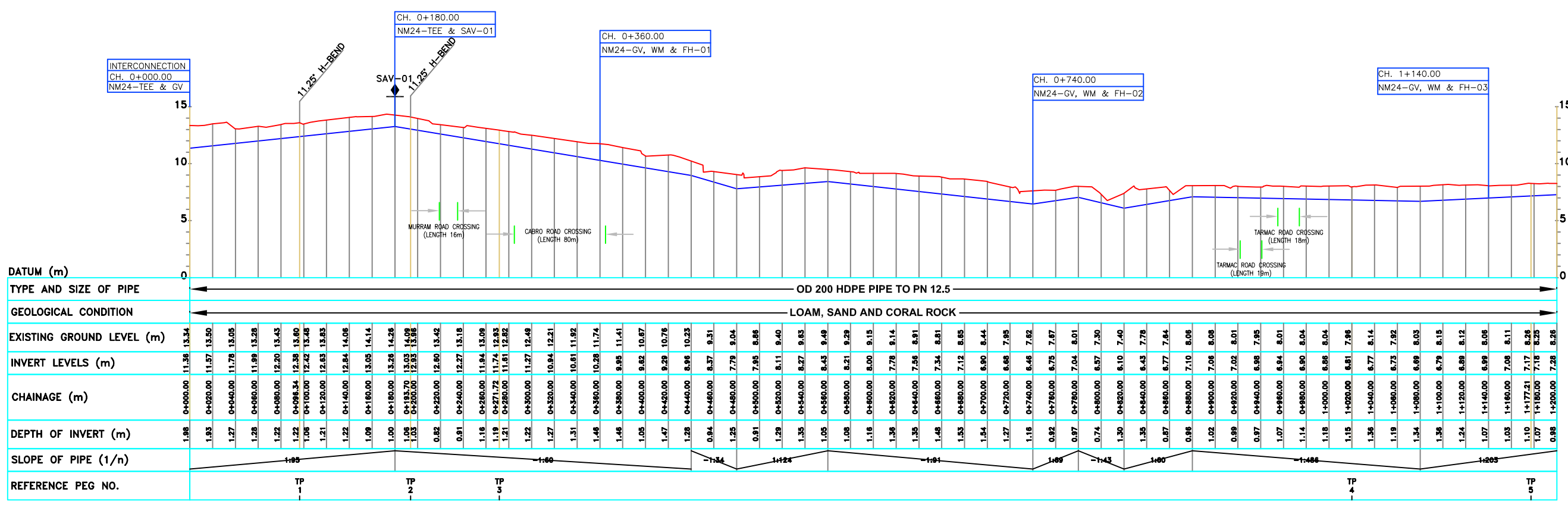
DRAWING TITLE:
LINE NM23 FITTING DETAILS SHEET 5 OF 5

Designed by: T.K.N	Drawn by: V.G.K
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/M0/NM/NM23/05	REV. 0



PLAN

- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - THE SURVEY WAS BASED ON THE DATUM BM273 WITH THE FOLLOWING COORDINATES AND ELEVATION.
- | BENCHMARK REF No. | EASTING | NORTHING | ELEVATION |
|-------------------|------------|--------------|-----------|
| BM273 | 580.603.58 | 9,558,012.51 | 8.36 |
- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GV GATE VALVE
 - FH FIRE HYDRANT
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - WM WATER METER
 - PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (Concrete with Iron Pin)



LONGITUDINAL SECTION

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

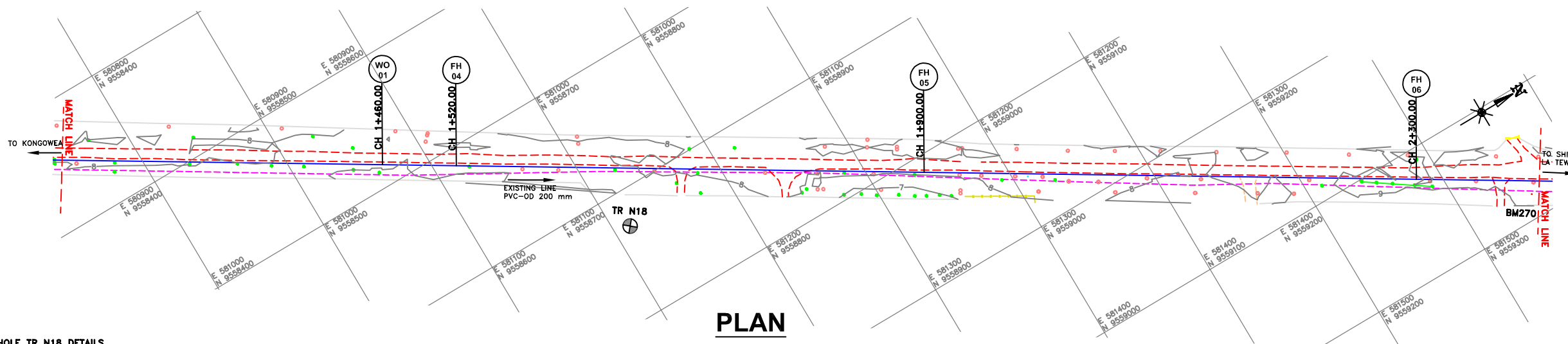
DRAWING TITLE:
**LINE NM24
 PLAN & LONGITUDINAL SECTION
 (CH 0+000.00 - 1+200.00)
 SHEET 1 OF 5**

Designed by: T.K.N | Drawn by: M.M.M

Checked by: E.I.M | Approved by: R.S.R

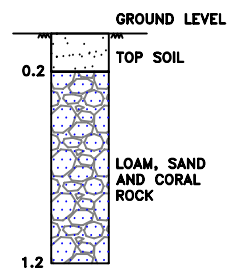
Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. **M410/MO/NM/NM24/01** | REV. 0



PLAN

TRIAL HOLE TR N18 DETAILS



NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- THE SURVEY WAS BASED ON THE DATUM BM270 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM270	581481.25	9,559,355.73	9.55

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- GATE VALVE
- FIRE HYDRANT
- WATER METER
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL
- BENCHMARK (Concrete with Iron Pin)

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
 P.O. BOX 90417 - 80100
 MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
 P.O. BOX 48674, 00100-GPO,
 NAIROBI, KENYA
 E-MAIL: mibp.nairobi@mibpp.com
 TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

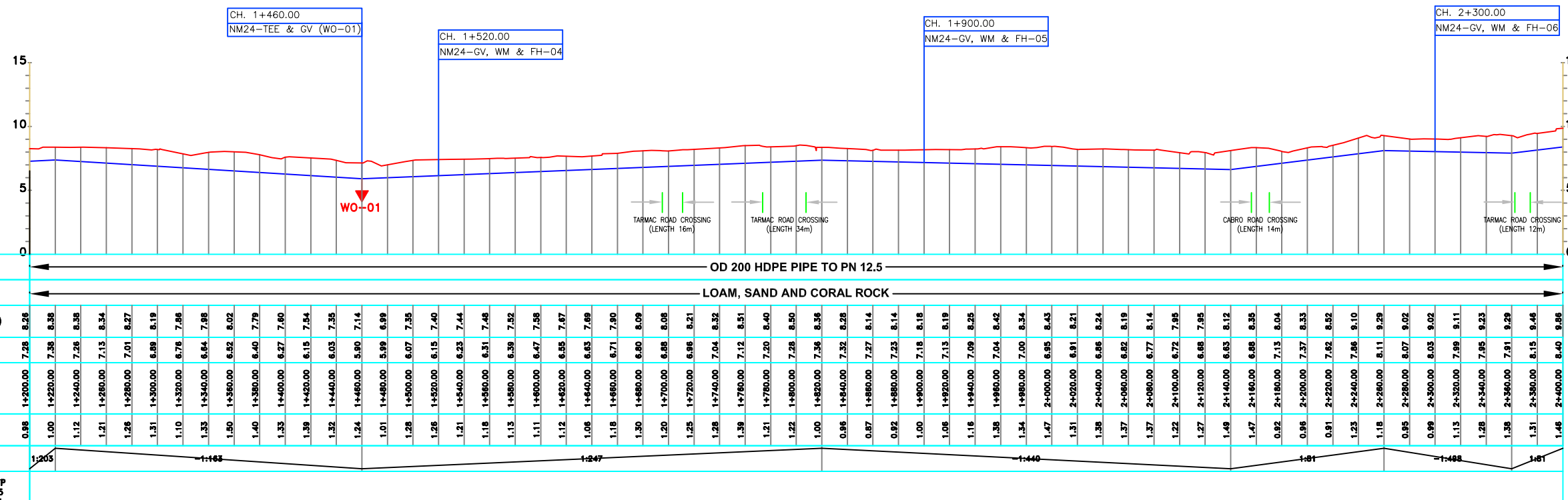
**LINE NM24
 PLAN & LONGITUDINAL SECTION
 (CH 1+200.00 - 2+400.00)
 SHEET 2 OF 5**

Designed by: T.K.N | Drawn by: M.M.M

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. M410/MO/NM/NM24/02 | REV. 0

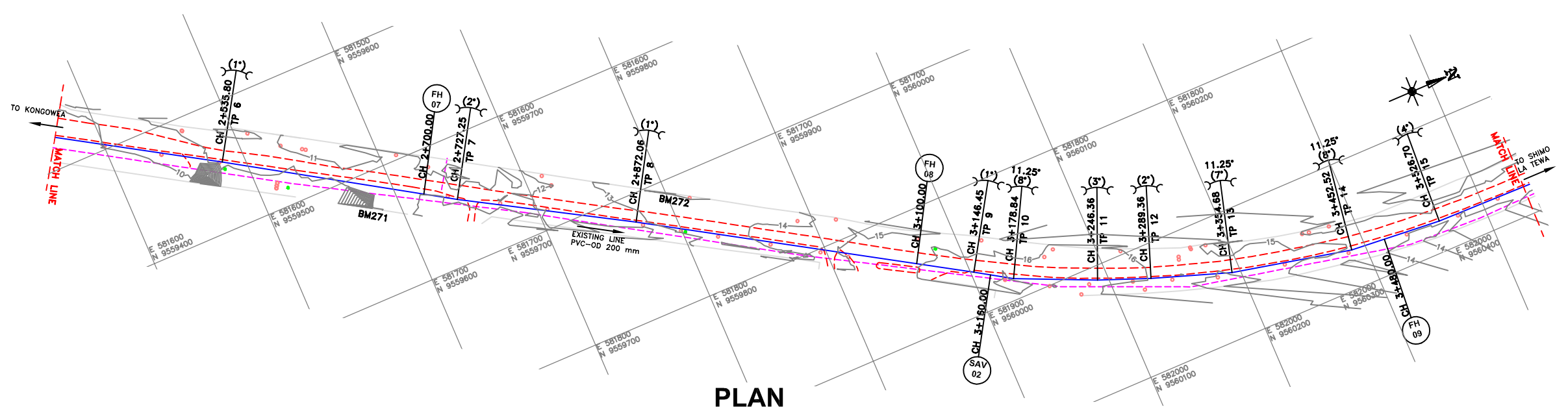


LONGITUDINAL SECTION

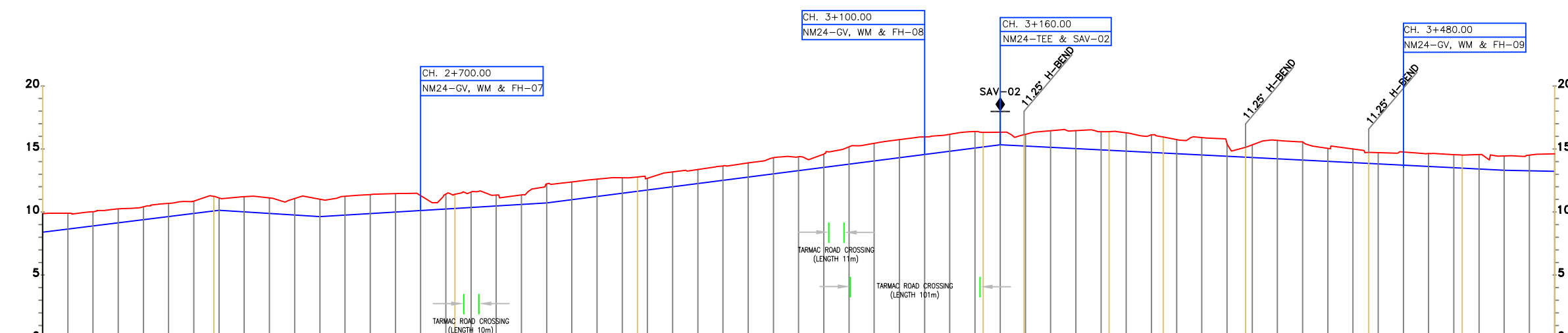
- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
 - GRID VALUES ARE IN METERS AT 100 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - MINIMUM PIPELINE SLOPES TO BE 1:500
 - DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
 - ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
 - THE SURVEY WAS BASED ON THE DATUM BM271 & BM272 WITH THE FOLLOWING COORDINATES AND ELEVATION.

BENCHMARK REF No.	EASTING	NORTHING	ELEVATION
BM271	581.616.07	9,559,586.35	11.25
BM272	581.704.39	9,559,785.23	13.96

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS, 1m INTERVAL
 - ELECTRIC POST
 - CULVERT
 - GATE
 - BUILDINGS
 - PROPOSED WATER MAIN
 - EXISTING WATER MAIN
 - TP10 TRAVERSE POINT & No.
 - TREES
 - TRIAL HOLE
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - GATE VALVE
 - FIRE HYDRANT
 - SAV-01 SINGLE ORIFICE AIR VALVE & No.
 - WM WATER METER
 - PIPELINE GRADE WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
 - PERIMETER WALL
 - BENCHMARK (Concrete with Iron Pin)



PLAN



DATUM (m)	TYPE AND SIZE OF PIPE	GEOLOGICAL CONDITION	EXISTING GROUND LEVEL (m)	INVERT LEVELS (m)	CHAINAGE (m)	DEPTH OF INVERT (m)	SLOPE OF PIPE (1/n)	REFERENCE PEG NO.
0	OD 200 HDPE PIPE TO PN 12.5	LOAM, SAND AND CORAL ROCK	9.88	8.40	2+400.00	1.48	1:81	
0		SAND AND ROCK	9.90	8.65	2+420.00	1.26		TP 6
0			10.02	8.90	2+440.00	1.13		
0			10.25	9.14	2+460.00	1.11		
0			10.42	9.39	2+480.00	1.03		
0			10.88	9.64	2+500.00	1.04		
0			10.87	9.88	2+520.00	0.99		
0			11.25	10.08	2+535.00	1.17		
0			11.22	10.01	2+540.00	1.21		
0			11.12	10.01	2+560.00	1.21		
0			11.12	9.88	2+580.00	1.24		
0			11.07	9.76	2+600.00	1.31		
0			11.01	9.64	2+620.00	1.36		
0			11.25	9.78	2+640.00	1.49		
0			11.38	9.88	2+660.00	1.50		
0			11.46	10.00	2+680.00	1.46		
0			11.30	10.12	2+700.00	1.18		
0			11.42	10.24	2+720.00	1.18		
0			12.78	10.29	2+727.25	1.12		TP 7
0			12.87	10.36	2+740.00	1.21		
0			11.34	10.46	2+760.00	0.88		
0			11.35	10.60	2+780.00	0.75		
0			12.22	10.73	2+800.00	1.49		
0			12.39	10.88	2+820.00	1.41		
0			12.80	11.24	2+840.00	1.56		
0			12.72	11.49	2+860.00	1.22		
0			12.64	11.65	2+872.06	1.14		TP 8
0			12.67	11.75	2+880.00	0.93		
0			13.18	12.01	2+900.00	1.17		
0			13.37	12.26	2+920.00	1.11		
0			14.39	13.28	3+000.00	1.10		
0			14.58	13.54	3+020.00	1.04		
0			15.17	13.80	3+040.00	1.37		
0			15.45	14.05	3+060.00	1.39		
0			15.74	14.31	3+080.00	1.43		
0			15.86	14.57	3+100.00	1.29		
0			16.16	14.82	3+120.00	1.34		
0			16.39	15.08	3+140.00	1.31		
0			16.32	15.16	3+146.45	1.16		TP 9
0			16.33	15.35	3+160.00	1.00		
0			16.13	15.24	3+178.84	0.89		TP 10
0			16.45	15.13	3+200.00	1.32		
0			16.46	15.03	3+220.00	1.43		
0			16.37	14.83	3+240.00	1.44		
0			16.37	14.80	3+246.36	1.46		TP 11
0			16.28	14.63	3+260.00	1.46		
0			16.12	14.73	3+280.00	1.40		
0			15.95	14.68	3+289.36	1.27		TP 12
0			15.74	14.63	3+300.00	1.12		
0			15.90	14.62	3+320.00	1.28		
0			15.44	14.42	3+340.00	1.02		
0			15.13	14.35	3+354.68	0.78		TP 13
0			15.33	14.32	3+360.00	1.01		
0			15.88	14.22	3+380.00	1.46		
0			15.56	14.12	3+400.00	1.44		
0			15.04	14.02	3+420.00	1.02		
0			15.00	13.92	3+440.00	1.08		
0			14.70	13.86	3+452.52	0.87		TP 14
0			14.70	13.82	3+460.00	0.89		
0			14.75	13.72	3+480.00	1.04		
0			14.64	13.62	3+500.00	1.02		
0			14.54	13.51	3+520.00	1.03		
0			14.52	13.48	3+528.70	1.04		TP 15
0			14.56	13.41	3+540.00	1.14		
0			14.45	13.31	3+560.00	1.14		
0			14.51	13.27	3+580.00	1.24		
0			14.81	13.22	3+800.00	1.59		

LONGITUDINAL SECTION

REVISIONS

NO.	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYER:
COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:
MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

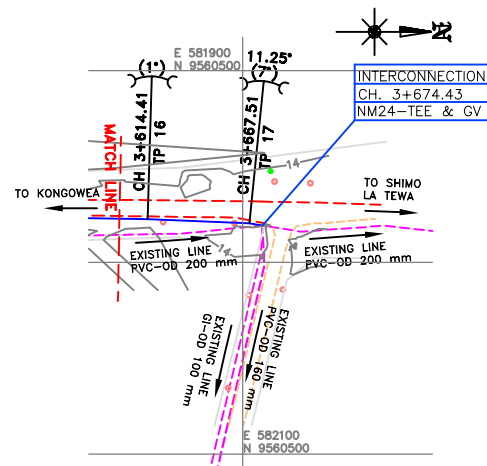
PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

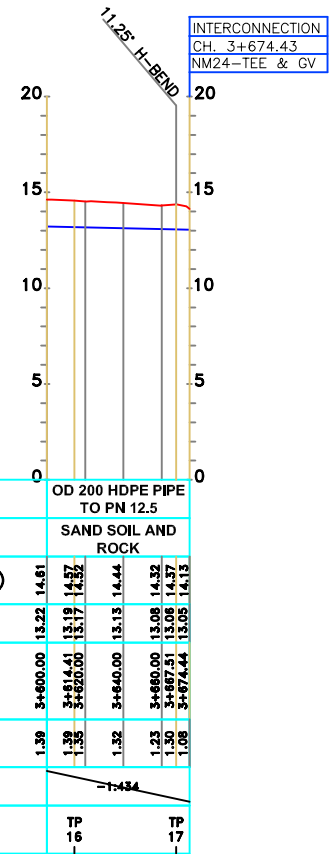
CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM24
PLAN & LONGITUDINAL SECTION
(CH 2+400.00 - 3+600.00)
SHEET 3 OF 5**

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM24/03	REV. 0



PLAN



DATUM (m)	0	0
TYPE AND SIZE OF PIPE	OD 200 HDPE PIPE TO PN 12.5	
GEOLOGICAL CONDITION	SAND SOIL AND ROCK	
EXISTING GROUND LEVEL (m)	14.61	14.44
INVERT LEVELS (m)	13.22	13.08
CHAINAGE (m)	3+600.00	3+674.43
DEPTH OF INVERT (m)	1.39	1.36
SLOPE OF PIPE (1/n)	1:34	
REFERENCE PEG NO.	TP 16	TP 17

LONGITUDINAL SECTION

NOTES:

- CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- MINIMUM PIPELINE SLOPES TO BE 1:500
- DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS, 1m INTERVAL
- ELECTRIC POST
- CULVERT
- GATE
- BUILDINGS
- PROPOSED WATER MAIN
- EXISTING WATER MAIN
- TP10 TRAVERSE POINT & No.
- TREES
- TRIAL HOLE
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- PIPELINE GRADIENT WITH SLOPE DIRECTION (SLOPE MIN. OR 1 IN n)
- PERIMETER WALL

REVISIONS	BY	DATE	APPROVED
	CHECKED		
	CHECKED		
	CHECKED		
	CHECKED		

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
**LINE NM24
PLAN & LONGITUDINAL SECTION
(CH 3+600.00 - 3+674.43)
SHEET 4 OF 5**

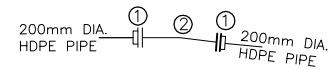
Designed by: T.K.N | Drawn by: M.M.M

Checked by: E.I.M | Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 | Date: APRIL 2020

DRG No. **M410/MO/NM/NM24/04** | REV. 0

DETAIL CH. 0+096.34, 0+193.70, 3+178.84, 3+354.67,
3+452.51 & 3+667.51
LINE NM24 - 11.25° H.BEND

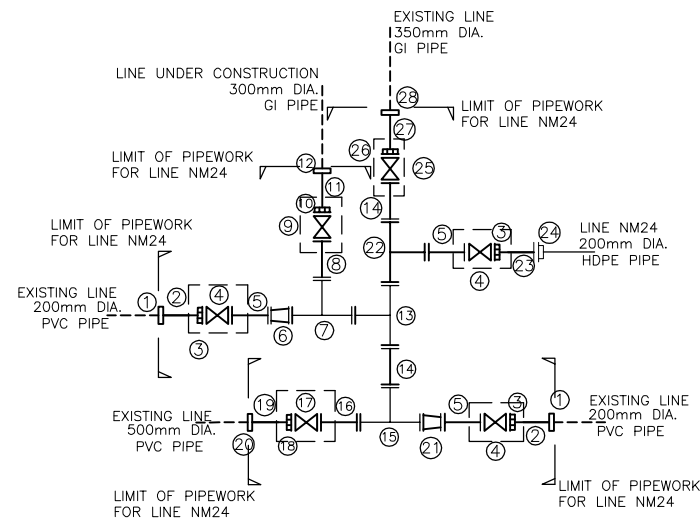


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS 11.25° BEND

DETAIL CH. 0+000.00
NM24 - PIPE MANIFOLD

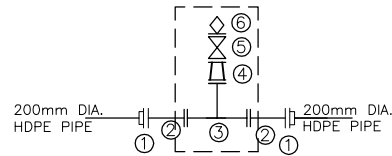


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. V.J. STEPPED COUPLING
- ② 2 Nos. 200mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ③ 3 Nos. 200mm DIA. FLANGE ADAPTOR
- ④ 3 Nos. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 1 No. 350x200mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑦ 1 No. 350x300mm DIA. ALL FLANGED FERROUS TEE
- ⑧ 1 No. 300mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑨ 1 No. 300mm DIA. ALL FLANGED GATE VALVE
- ⑩ 1 No. 300mm DIA. FLANGE ADAPTOR
- ⑪ 1 No. 300mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑫ 1 No. 300mm DIA. V.J STEPPED COUPLING
- ⑬ 1 No. 350x350mm DIA. ALL FLANGED FERROUS TEE
- ⑭ 2 Nos. 350mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑮ 1 No. 500x350mm DIA. ALL FLANGED FERROUS TEE
- ⑯ 1 No. 500mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑰ 1 No. 500mm DIA. ALL FLANGED GATE VALVE
- ⑱ 1 No. 500mm DIA. FLANGE ADAPTOR
- ⑲ 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑳ 1 No. 500mm DIA. V.J STEPPED COUPLING
- ㉑ 1 No. 500x200mm DIA. ALL FLANGED CONCENTRIC TAPER
- ㉒ 1 No. 350x200mm DIA. ALL FLANGED FERROUS TEE
- ㉓ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ㉔ 1 No. 200mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ㉕ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ㉖ 1 No. 350mm DIA. FLANGE ADAPTOR
- ㉗ 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ㉘ 1 No. 350mm DIA. V.J STEPPED COUPLING

DETAIL CH. 0+180.00 & 3+160.00
LINE NM24 - TEE & SAV-01 & 02

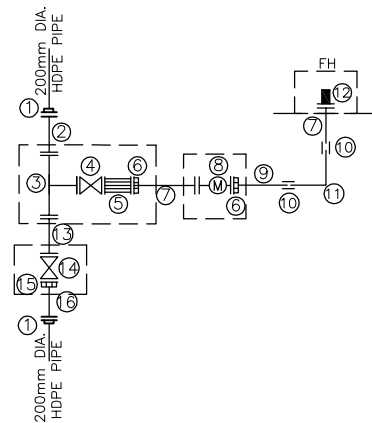


DESCRIPTION

2 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 200x100mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 100x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE WITH BUILT IN ISOLATING VALVE
- ⑥ 1 No. 50mm DIA. SINGLE ORIFICE AIR VALVE

DETAIL CH. 0+360.00, 0+740.00, 1+140.00, 1+520.00, 1+900.00, 2+300.00,
2+700.00, 3+100.00 & 3+480.00
LINE NM24 - GV, WM & FH - 01, 02, 03, 04, 05, 06, 07, 08 & 09

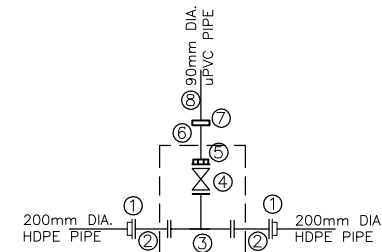


DESCRIPTION

9 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. ALL FLANGED STRAINER
- ⑥ 2 Nos. 80mm DIA. V.J FLANGE ADAPTOR
- ⑦ 2 Nos. 80mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG
- ⑧ 1 No. 80mm DIA. ALL FLANGED WATER METER
- ⑨ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑩ 2 Nos. 80mm DIA. V.J. COUPLING
- ⑪ 1 No. 80mm DIA. PLAIN ENDED FERROUS 90° BEND
- ⑫ 1 No. 80mm DIA. FIRE HYDRANT
- ⑬ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 2m LONG
- ⑭ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑮ 1 No. 200mm DIA. V.J FLANGE ADAPTOR
- ⑯ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1.2m LONG

DETAIL CH. 1+460.00
LINE NM24 - TEE & GV (WO) - 01

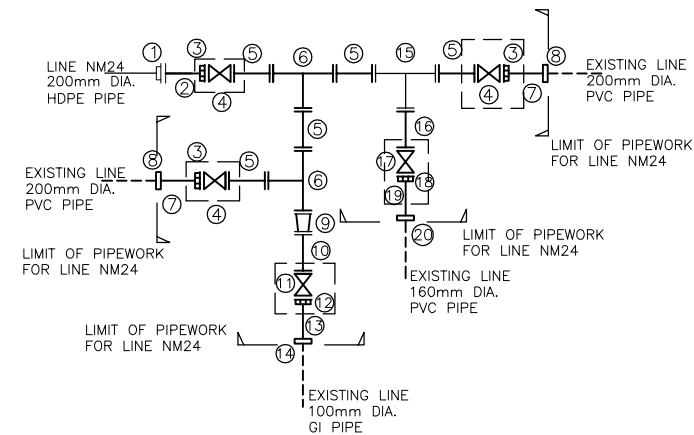


DESCRIPTION

1 No. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR(STUB END) COMPLETE WITH METAL BACK UP RING
- ② 2 Nos. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- ③ 1 No. 200x80mm DIA. ALL FLANGED FERROUS INVERTED TEE
- ④ 1 No. 80mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 80mm DIA. V.J FLANGE ADAPTOR
- ⑥ 1 No. 80mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ⑦ 1 No. 80mm DIA. V.J. STEPPED COUPLING
- ⑧ 1 No. 90mm DIA. uPVC CLASS "B" PIPE (LENGTH TO SUIT ON SITE)

DETAIL CH. 3+674.43
NM24 - PIPE MANIFOLD



DESCRIPTION

1 No. REQUIRED

- ① 1 No. 200mm DIA. PE FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACK UP RING
- ② 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 3 Nos. 200mm DIA. FLANGE ADAPTOR
- ④ 3 Nos. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 5 Nos. 200mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑥ 2 Nos. 200x200mm DIA. ALL FLANGED FERROUS TEE
- ⑦ 2 Nos. 200mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑧ 2 Nos. 200mm DIA. V.J. STEPPED COUPLING
- ⑨ 1 No. 200x100mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑩ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑪ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑫ 1 No. 100mm DIA. FLANGE ADAPTOR
- ⑬ 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑭ 1 No. 100mm DIA. V.J STEPPED COUPLING
- ⑮ 1 No. 200x150mm DIA. ALL FLANGED FERROUS TEE
- ⑯ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1.2m LONG
- ⑰ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑱ 1 No. 150mm DIA. FLANGE ADAPTOR
- ⑲ 1 No. 150mm DIA. PLAIN ENDED FERROUS PIPE 1.2m LONG
- ⑳ 1 No. 150mm DIA. V.J STEPPED COUPLING

NOTES:

- 1. CONTOUR LEVELS ARE IN METERS AT ONE METER INTERVALS
- 2. GRID VALUES ARE IN METERS AT 100 METER INTERVALS
- 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
- 4. MINIMUM PIPELINE SLOPES TO BE 1:500
- 5. DRAWING TO BE READ IN CONJUNCTION WITH STANDARD DRAWINGS
- 6. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT

LEGEND:

V.J.	VIKING JOHNSON
GV	GATE VALVE
FH	FIRE HYDRANT
WO-01	WASHOUT VALVE & No.
SAV-01	SINGLE ORIFICE AIR VALVE & No.
WM	WATER METER
[]	PROPOSED MASONRY CHAMBER
()	PROPOSED VALVE BOX

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O. BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

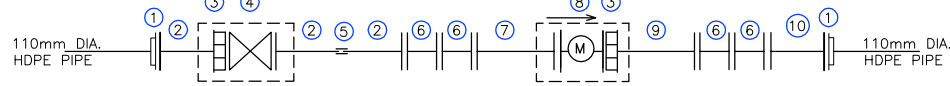
DRAWING TITLE:

LINE NM24 FITTING DETAILS SHEET 5 OF 5

Designed by: T.K.N	Drawn by: M.M.M
Checked by: E.I.M	Approved by: R.S.R
Scale: H- 1:4000, V- 1:400	Date: APRIL 2020
DRG No. M410/MO/NM/NM24/05	REV. 0

HIGH DENSITY POLYETHYLENE (HDPE) PIPES

DETAIL OF BULK METER INSTALLATION ON 110mm Dia. HDPE PIPE



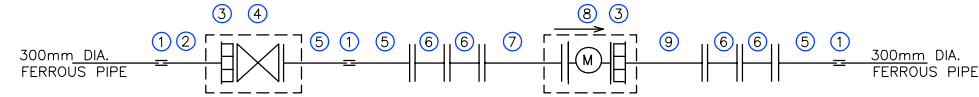
DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. V.J COUPLINGS
- ⑥ 4 Nos. 100mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 100mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑧ 1 No. 100mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END
- ⑩ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

FERROUS PIPES

DETAIL OF BULK METER INSTALLATION ON 300mm Dia. FERROUS PIPES



DESCRIPTION

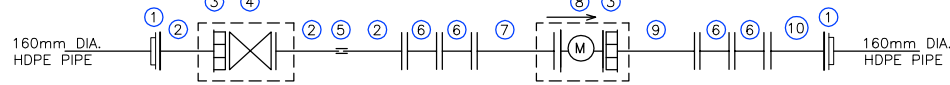
1 No. REQUIRED

- ① 3 Nos. 300mm DIA. V.J. COUPLING
- ② 1 No. 300mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 300mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 300mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 300mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 300mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 475mm FROM ONE END
- ⑧ 1 No. 300mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 475mm FROM THE PLAIN END

NOTES:

- 1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- 2. ALL PIPES AND FITTING DIAMETERS ARE NOMINAL DIAMETER
- 3. CONTRACTOR TO CONFIRM IN LIAISON WITH THE ENGINEER THE ACTUAL LOCATIONS AND SIZES OF EXISTING NEW PIPES ON WHICH THE METERS ARE TO BE INSTALLED PRIOR TO PROCUREMENT OF THE METERS AND ASSOCIATED FITTINGS

DETAIL OF BULK METER INSTALLATION ON 160mm Dia. HDPE PIPE

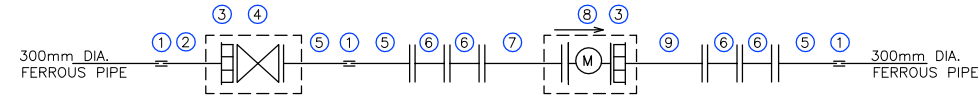


DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150mm DIA. V.J COUPLING
- ⑥ 4 Nos. 150mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 150mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑧ 1 No. 150mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END
- ⑩ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

DETAIL OF BULK METER INSTALLATION ON 350mm Dia. FERROUS PIPES

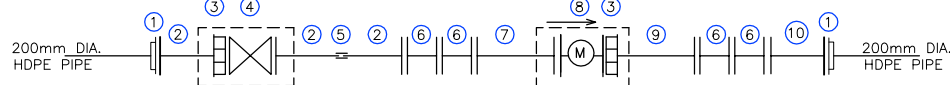


DESCRIPTION

1 No. REQUIRED

- ① 3 Nos. 350mm DIA. V.J. COUPLING
- ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 350mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 350mm DIA. ALL FLANGED PIPE 1200mm LONG WITH PUDDLE FLANGE 450mm FROM ONE END
- ⑧ 1 No. 350mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 450mm FROM THE PLAIN END

DETAIL OF BULK METER INSTALLATION ON 200mm Dia. HDPE PIPE

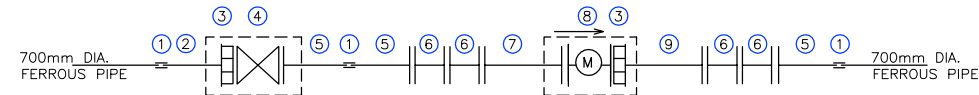


DESCRIPTION

6 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 200mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. V.J COUPLING
- ⑥ 4 Nos. 200mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 200mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 525mm FROM ONE END
- ⑧ 1 No. 200mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 525mm FROM THE PLAIN END
- ⑩ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

DETAIL OF BULK METER INSTALLATION ON 700mm Dia. FERROUS PIPES



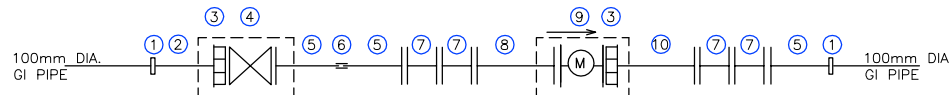
DESCRIPTION

1 No. REQUIRED

- ① 3 Nos. 700mm DIA. V.J. COUPLING
- ② 1 No. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 700mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 700mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 700mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 700mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 700mm DIA. ALL FLANGED PIPE 3500mm LONG WITH PUDDLE FLANGE 570mm FROM ONE END
- ⑧ 1 No. 700mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 700mm DIA. FLANGED SPIGOT FERROUS PIPE 2100mm WITH PUDDLE FLANGE 570mm FROM THE PLAIN END

GALVANIZED IRON (GI) PIPES

DETAIL OF BULK METER INSTALLATION ON 100mm Dia. GI PIPES



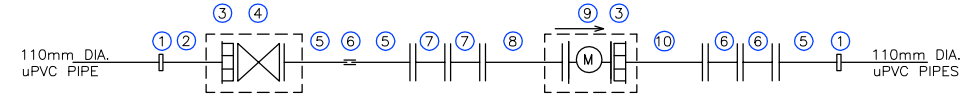
DESCRIPTION

3 Nos. REQUIRED

- ① 2 Nos. 100mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 100mm DIA. V.J COUPLINGS
- ⑦ 4 Nos. 100mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 100mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑨ 1 No. 100mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END

uPVC PIPES

DETAIL OF BULK METER INSTALLATION ON 110mm Dia. uPVC PIPES



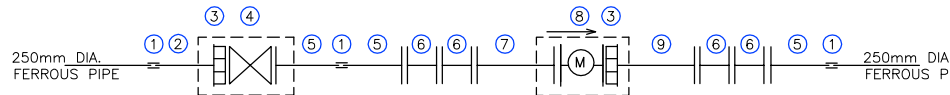
DESCRIPTION

8 Nos. REQUIRED

- ① 2 Nos. 100mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 100mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 100mm DIA. V.J COUPLINGS
- ⑦ 4 Nos. 100mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 100mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑨ 1 No. 100mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END

FERROUS PIPES

DETAIL OF BULK METER INSTALLATION ON 250mm Dia. FERROUS PIPES



DESCRIPTION

1 No. REQUIRED

- ① 3 Nos. 250mm DIA. V.J. COUPLING
- ② 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 250mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 250mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 250mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 500mm FROM ONE END
- ⑧ 1 No. 250mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 500mm FROM THE PLAIN END

DETAIL OF BULK METER INSTALLATION ON 160mm Dia. uPVC PIPES



DESCRIPTION

5 Nos. REQUIRED

- ① 2 Nos. 150mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 150mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 150mm DIA. V.J COUPLINGS
- ⑦ 4 Nos. 150mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 150mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑨ 1 No. 150mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674,00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

WATER DISTRIBUTION NETWORK FITTING DETAILS FOR BULK METER INSTALLATIONS SHEET 1 OF 2

Designed by: E.M.M Drawn by: E.M.M

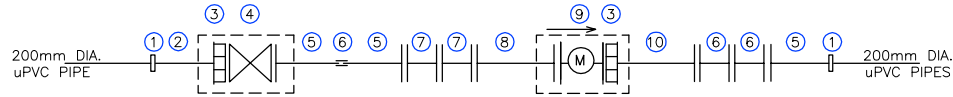
Checked by: E.I.M Approved by: R.S.R

Scale: H-1:4000, V-1:400 Date: APRIL 2020

DRG No. M410/MO/NM/BM-2020/01 REV. 0

uPVC PIPES

DETAIL OF BULK METER INSTALLATION ON 200mm Dia. uPVC PIPES

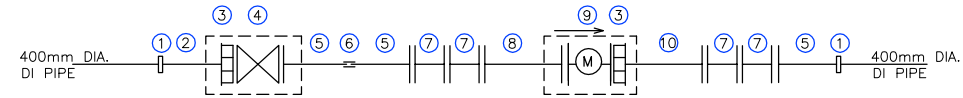


DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 200mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 200mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 200mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 200mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 200mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 200mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 550mm FROM ONE END
- ⑨ 1 No. 200mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 550mm FROM THE PLAIN END

DUCTILE IRON (DI) PIPES

DETAIL OF BULK METER INSTALLATION ON 400mm Dia. DI PIPES



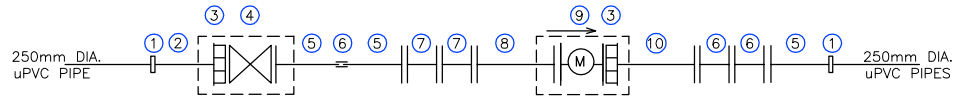
DESCRIPTION
5 Nos. REQUIRED

- ① 2 Nos. 400mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 400mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 400mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 400mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 400mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 400mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 400mm DIA. ALL FLANGED PIPE 2000mm LONG WITH PUDDLE FLANGE 425mm FROM ONE END
- ⑨ 1 No. 400mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 400mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm WITH PUDDLE FLANGE 425mm FROM THE PLAIN END

NOTES:

- 1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- 2. ALL PIPES AND FITTING DIAMETERS ARE NOMINAL DIAMETER
- 3. CONTRACTOR TO CONFIRM IN LIAISON WITH THE ENGINEER THE ACTUAL LOCATIONS AND SIZES OF EXISTING NEW PIPES ON WHICH THE METERS ARE TO BE INSTALLED PRIOR TO PROCUREMENT OF THE METERS AND ASSOCIATED FITTINGS

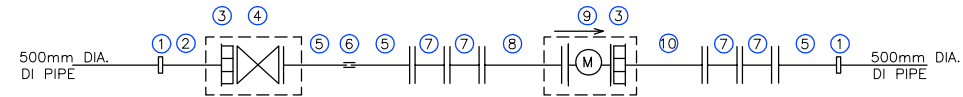
DETAIL OF BULK METER INSTALLATION ON 250mm Dia. uPVC PIPES



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 250mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 250mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 250mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 250mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 250mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 500mm FROM ONE END
- ⑨ 1 No. 250mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 500mm FROM THE PLAIN END

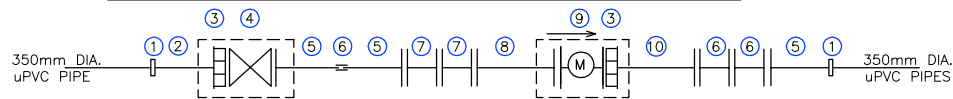
DETAIL OF BULK METER INSTALLATION ON 500mm Dia. DI PIPES



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 500mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 500mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 500mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 500mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 500mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 500mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 500mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 500mm DIA. ALL FLANGED PIPE 2500mm LONG WITH PUDDLE FLANGE 425mm FROM ONE END
- ⑨ 1 No. 500mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 500mm DIA. FLANGED SPIGOT FERROUS PIPE 1500mm WITH PUDDLE FLANGE 425mm FROM THE PLAIN END

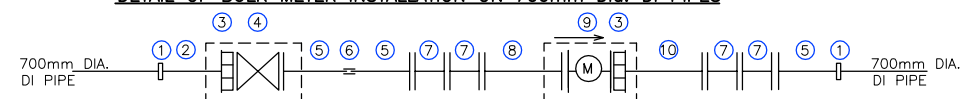
DETAIL OF BULK METER INSTALLATION ON 350mm Dia. uPVC PIPES



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 350mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 350mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 350mm DIA. ALL FLANGED PIPE 1200mm LONG WITH PUDDLE FLANGE 450mm FROM ONE END
- ⑨ 1 No. 350mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 450mm FROM THE PLAIN END

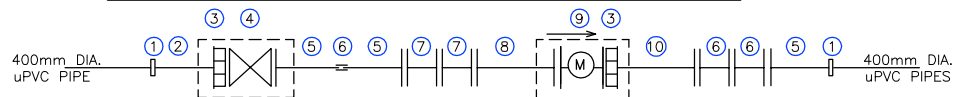
DETAIL OF BULK METER INSTALLATION ON 700mm Dia. DI PIPES



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 700mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 700mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 700mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 700mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 700mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 700mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 700mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 700mm DIA. ALL FLANGED PIPE 3500mm LONG WITH PUDDLE FLANGE 570mm FROM ONE END
- ⑨ 1 No. 700mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 700mm DIA. FLANGED SPIGOT FERROUS PIPE 2100mm WITH PUDDLE FLANGE 570mm FROM THE PLAIN END

DETAIL OF BULK METER INSTALLATION ON 400mm Dia. uPVC PIPES



DESCRIPTION
1 No. REQUIRED

- ① 2 Nos. 400mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 400mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 400mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 400mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 400mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 400mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 400mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 400mm DIA. ALL FLANGED PIPE 2000mm LONG WITH PUDDLE FLANGE 425mm FROM ONE END
- ⑨ 1 No. 400mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 400mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm WITH PUDDLE FLANGE 425mm FROM THE PLAIN END

DUCTILE IRON (DI) PIPES

DETAIL OF BULK METER INSTALLATION ON 350mm Dia. DI PIPES



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 350mm DIA. V.J. COUPLINGS
- ⑦ 4 Nos. 350mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 350mm DIA. ALL FLANGED PIPE 1200mm LONG WITH PUDDLE FLANGE 450mm FROM ONE END
- ⑨ 1 No. 350mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm WITH PUDDLE FLANGE 450mm FROM THE PLAIN END

REVISIONS				SIGN	DATE	APPROVED
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:

WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:

MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: KE-CWSB-150896-CW-RFB

DRAWING TITLE:

WATER DISTRIBUTION NETWORK FITTING DETAILS FOR BULK METER INSTALLATIONS SHEET 2 OF 2

Designed by: E.M.M Drawn by: E.M.M

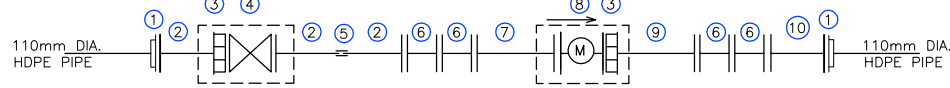
Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. M410/MO/NM/BM-2020/02 REV. 0

HIGH DENSITY POLYETHYLENE (HDPE) PIPES

DETAIL OF BULK METER INSTALLATION ON 110mm Dia. HDPE PIPE

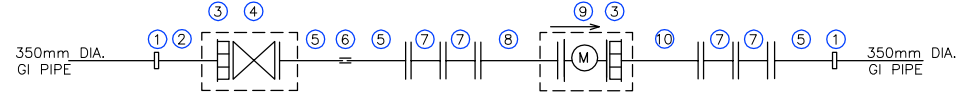


DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 110mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 100mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 100mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 100mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 100mm DIA. V.J COUPLINGS
- ⑥ 4 Nos. 100mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 100mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑧ 1 No. 100mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 100mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END
- ⑩ 1 No. 100mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

GALVANIZED IRON (GI) PIPES

DETAIL OF BULK METER INSTALLATION ON 350mm Dia. GI PIPES



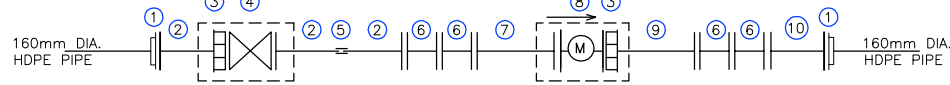
DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 350mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 350mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 350mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 350mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 350mm DIA. V.J COUPLINGS
- ⑦ 4 Nos. 350mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 350mm DIA. ALL FLANGED PIPE 1200mm LONG WITH PUDDLE FLANGE 450mm FROM ONE END
- ⑨ 1 No. 350mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 350mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 450mm FROM THE PLAIN END

NOTES:

- 1. ALL PIPE FITTINGS TO BE CONFIRMED ON SITE DURING SETTING OUT
- 2. ALL PIPES AND FITTING DIAMETERS ARE NOMINAL DIAMETER
- 3. CONTRACTOR TO CONFIRM IN LIAISON WITH THE ENGINEER THE ACTUAL LOCATIONS AND SIZES OF EXISTING NEW PIPES ON WHICH THE METERS ARE TO BE INSTALLED PRIOR TO PROCUREMENT OF THE METERS AND ASSOCIATED FITTINGS

DETAIL OF BULK METER INSTALLATION ON 160mm Dia. HDPE PIPE



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 160mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 150mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 150mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 150mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 150mm DIA. V.J COUPLING
- ⑥ 4 Nos. 150mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 150mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 575mm FROM ONE END
- ⑧ 1 No. 150mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 150mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 575mm FROM THE PLAIN END
- ⑩ 1 No. 150mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

FERROUS (FE) PIPES

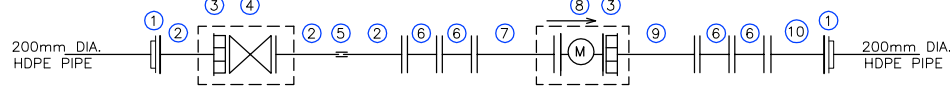
DETAIL OF BULK METER INSTALLATION ON 250mm Dia. FERROUS PIPES



DESCRIPTION
1 No. REQUIRED

- ① 3 Nos. 250mm DIA. V.J. COUPLING
- ② 1 No. 250mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 250mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 250mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 250mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 250mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 500mm FROM ONE END
- ⑧ 1 No. 250mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 250mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 500mm FROM THE PLAIN END

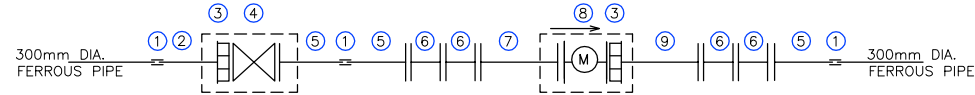
DETAIL OF BULK METER INSTALLATION ON 200mm Dia. HDPE PIPE



DESCRIPTION
3 Nos. REQUIRED

- ① 2 Nos. 200mm DIA. P.E FLANGE ADAPTOR (STUB END) COMPLETE WITH METAL BACKUP RING
- ② 3 Nos. 200mm DIA. FLANGED SPIGOT FERROUS PIPES 1200mm LONG
- ③ 2 Nos. 200mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 200mm DIA. ALL FLANGED GATE VALVE
- ⑤ 1 No. 200mm DIA. V.J COUPLING
- ⑥ 4 Nos. 200mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 200mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 525mm FROM ONE END
- ⑧ 1 No. 200mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 200mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 525mm FROM THE PLAIN END
- ⑩ 1 No. 200mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG

DETAIL OF BULK METER INSTALLATION ON 300mm Dia. FERROUS PIPES

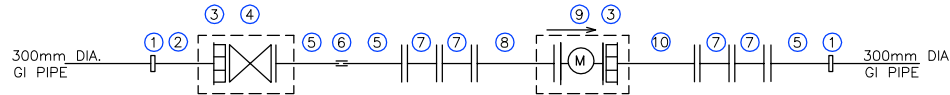


DESCRIPTION
1 No. REQUIRED

- ① 3 Nos. 300mm DIA. V.J. COUPLING
- ② 1 No. 300mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 300mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 300mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 4 Nos. 300mm DIA. ALL FLANGED 45° BEND
- ⑦ 1 No. 300mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 475mm FROM ONE END
- ⑧ 1 No. 300mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑨ 1 No. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 475mm FROM THE PLAIN END

GALVANIZED IRON (GI) PIPES

DETAIL OF BULK METER INSTALLATION ON 300mm Dia. GI PIPES



DESCRIPTION
2 Nos. REQUIRED

- ① 2 Nos. 300mm DIA. V.J. STEPPED COUPLING
- ② 1 No. 300mm DIA. PLAIN ENDED FERROUS PIPE 1200mm LONG
- ③ 2 Nos. 300mm DIA. V.J. FLANGE ADAPTOR
- ④ 1 No. 300mm DIA. ALL FLANGED GATE VALVE
- ⑤ 3 Nos. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ⑥ 1 No. 300mm DIA. V.J COUPLINGS
- ⑦ 4 Nos. 300mm DIA. ALL FLANGED 45° BEND
- ⑧ 1 No. 300mm DIA. ALL FLANGED PIPE 1000mm LONG WITH PUDDLE FLANGE 475mm FROM ONE END
- ⑨ 1 No. 300mm DIA. ALL FLANGED BATTERY POWERED ELECTROMAGNETIC WATER METER, COMPLETE WITH LED DISPLAY AND REQUISITE FITTINGS
- ⑩ 1 No. 300mm DIA. FLANGED SPIGOT FERROUS PIPE 1000mm WITH PUDDLE FLANGE 475mm FROM THE PLAIN END

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT/EMPLOYER:

COAST WATER WORKS DEVELOPMENT AGENCY
P.O. BOX 90417 - 80100
MOMBASA, KENYA

CONSULTANT:

MIBP MANGAT I.B. PATEL (MIBP) LIMITED
P.O BOX 48674, 00100-GPO,
NAIROBI, KENYA
E-MAIL: mibp.nairobi@mibpp.com
TEL: +254-2-2710500

PROJECT NAME:
WATER AND SANITATION DEVELOPMENT PROJECT (WSDP)

CONTRACT NAME:
MOMBASA WATER DISTRIBUTION WORKS FOR NORTH MAINLAND (SHORT TERM WORKS) LOT 1A

CONTRACT NO: **KE-CWSB-150896-CW-RFB**

DRAWING TITLE:
WATER DISTRIBUTION NETWORK FITTING DETAILS FOR BULK METER INSTALLATIONS SHEET 1 OF 1

Designed by: E.M.M Drawn by: E.M.M

Checked by: E.I.M Approved by: R.S.R

Scale: H- 1:4000, V- 1:400 Date: APRIL 2020

DRG No. **M410/MO/NM/BM-2030/01** REV. 0