Water & Civil Division

Water AMI (Advanced Metering Infrastructure) Project

GUIDELINES FOR 50MM DIA. BULK WATER METER INSTALLATION

LDPE CONNECTION

TABLE OF CONTENTS

GUIDELINES FOR 50MM DIA BULK WATER METER INSTALLATION

Water meters of 50mm diameter (LDPE connection) shall be installed in a horizontal position inside the meter chamber, strictly in accordance with the standard installation drawing PEW-STD-AMI-005.Rev5.

A. BULK WATER METER INSTALLATION STANDARD

1. A 50mm bulk water meter shall not be installed in basements, pump rooms, meter rooms, upper floors, or rooftops under any circumstances.
2. The meter location and access area shall remain unobstructed by signboards, barriers, landscaping, or other obstacles, and must maintain a minimum clearance of 2 metres from all electrical installations.
3. DEWA-approved installation guidelines must be strictly adhered to during installation.
4. The meter shall be handled with care and must not be dropped or subjected to impact during installation.
5. The meter shall be installed in alignment with the flow direction arrows marked on its body.
6. The register/display of the meter shall be oriented to allow easy reading from outside the chamber.
7. All pipes, valves, and ancillary fittings used for meter connections shall be of high-grade, heavy-duty, non-toxic, and corrosion-resistant materials. Flanges, nuts, and bolts shall be of Stainless Steel 316L.
8. The meter must always remain filled with water to prevent air passage through the device. A 90° upward bend shall be installed downstream of the meter to connect with the consumer pipeline.
9. Adequate reinforced concrete support shall be provided for valves, pipes, and fittings inside the chamber to prevent displacement. Under no condition shall the water meter, flanges, or fittings be encased in concrete.
10. Stepping on the water meter during installation, reading, or maintenance is strictly prohibited.
11. All joints and connections must be thoroughly pressure-tested for leaks after installation.
12. Impacting or striking the meter body to rectify problems is strictly forbidden.
13. The meter shall not be repositioned after flange bolts have been fully tightened.
14. The consumer pipeline shall be thoroughly flushed prior to meter installation.
15. Full-bore isolation valves shall be installed upstream and downstream of the meter to allow maintenance.
16. The consumer shall provide a separate isolation valve outside the meter chamber on their own pipeline for maintenance purposes.
17. A Non-Return Valve (NRV) shall be installed downstream of the meter, outside the chamber, to prevent reverse flow from the consumer's storage tank into the DEWA water network.
18. The NRV shall be heavy-duty, non-toxic, non-corrosive, and preferably Stainless Steel 316L.
19. The consumer's pipeline after the meter shall connect directly to a single main storage tank. Additional tanks, including firefighting tanks, shall be interconnected only through this main tank.

20. The consumer pipeline immediately downstream of the water meter (50mm) shall maintain the same nominal diameter as the water meter until it reaches the main storage tank, in order to prevent meter overload alarms. In the case of two storage tanks, the pipeline shall be branched such that each connection maintains a diameter equal to that of the meter

21. The installation of booster pumps either upstream or downstream of the meter is strictly prohibited. Violations will be subject to penalty as per applicable laws.

22. Consumers may install water pumps only after their storage tank, if required.

23. The construction of the meter chamber, including the chamber cover, shall be fully completed prior to meter installation to protect the meter from damage.

24. Detailed shop drawings shall be submitted to DEWA for approval prior to commencement of works.

B. GUIDELINES FOR 50MM DIA. BULK WATER METER CHAMBERS

1. The size of water meter chamber for 50mm dia. bulk meters shall be constructed in 1500mm length, 1000mm width and 600mm depth as shown in drawing No. PEW-STD-AMI-005. Rev5. The above dimensions are mandatory to ensure proper accommodation of the meter and associated fittings, in line with standard drawing PEW-STD-AMI-005.Rev5.

2. Chambers shall be located away from electrical cables, overhead lines, magnetic fields, and vibration-prone areas.

3. The finished level of the water meter chamber shall be constructed to match the adjacent footpath level, ensuring accessibility and preventing ponding or surface water ingress.

4. Chambers shall be constructed outside the plot boundary wall and remain accessible 24 hours a day.

5. The meter must not be buried; it shall be housed in a chamber of adequate size to permit installation, operation, maintenance, and removal.

6. The chamber shall be waterproof, obstacle-free, rigid, non-slippery, and level, and shall include a sump pit for drainage.

7. The chamber shall be protected from sand accumulation, flooding, and vehicular traffic (by means of barricading).

8. The meter body, strainers, and valves shall not be encased or obstructed by concrete.

9. Nuts and bolts shall be oriented such that the nut is placed on the wall/concrete block side and the bolt on the meter/valve side, to allow easy removal and tightening.

10. The chamber cover shall allow wireless/radio communication signals to pass through and shall therefore be constructed of GRP material.

11. The cover shall be permanently marked with the DEWA logo and the words Water Meter in both Arabic and English.

12. A stainless-steel engraved label reading DEWA Water Meter Chamber along with the Legacy Account Number and Plot Number shall be affixed to the top concrete slab for identification.

13. DEWA shall supply and install all water meters and isolation valves for new connections. Installation will be executed either by DEWA staff or by DEWA-authorized contractors. Consumers and developers shall be responsible for all ancillary fittings and downstream pipework, in compliance with DEWA specifications and approved drawings.

14. Details of pipe sizing, meter flow capacity (daily delivery in 24 hours), and required storage tank capacity for premises served by 50mm bulk meters are provided in the technical schedule below.

PIPE SIZE, METER SIZE, METER CAPACITY AND STORAGE TANK REQUIREMENTS

Pipe Size To Install the Meter (mm)	Meter Size (mm)	Meter Capacity/ Quantity of Water the Meter can Deliver in 24 Hours (m^3/day)	Pipe Size to be Connected Between the Meter and Storage Tank. (mm)	Storage Tank Requirement for Standard Residential Premises	Storage Tank Requirement for Labour Accommodation and other High Consumption Premises
LDPE 25mmX 2 pipes or 25mmX 3 pipes	**50**	51-102	**50**	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption

C. M-BUS CABLE CONTAINMENT INSTALLATION STANDARD

1. A 25mm heavy-duty conduit shall be laid between the water meter chamber and the LV room for routing the M-Bus communication cable. No conduit joints shall be installed inside the meter chamber, except for couplings/adaptors connecting to the PVC junction box.

2. The conduit shall be CPVC with a wall thickness of 2.8mm, installed underground in sand bedding or concealed within concrete/blockwork from the meter chamber to the retaining wall. Upon entry into the building, the conduit shall transition to GI (Galvanized Iron) and be routed exposed along walls and ceilings leading to the LV room. Concealed installation within the building is prohibited.

3. A 75mm HDPE protective pipe shall be installed from the water meter chamber to the retaining/boundary wall to provide additional protection to the conduit. Where the distance between the chamber and boundary wall exceeds 20m, or where direction changes are required, a pull pit of dimensions 300x300x300mm shall be constructed at every 25m interval or at each change in direction. Pull pits shall be covered with a ductile iron cover conforming to BS-EN124 C250, embossed with DEWA–W-AMI, and sealed with a watertight GRP sealing plate, as shown in Reference Drawing #1, Section E.

4. Inside the building, GI conduit shall be routed exposed, with two-way junction boxes installed at every 25m length and at each change in direction (corners) until termination at the LV room. Concealment of GI conduit is not permitted.

5. A PVC junction box (100x100x50mm, IP68 rated) shall be installed inside the meter chamber, connected to the 25mm conduit via suitable couplings/adaptors. The junction box shall be fitted with a PVC PG-7 gland at the bottom.

6. A GI junction box (150x150x100mm, IP56 rated) shall be installed in the LV room, fixed at a height of 1400mm above finished floor level, and connected to the GI conduit using appropriate couplings/adaptors.

7. A single-phase, 230V AC power supply (3Cx2.5 Sq.mm cable) from a standard power source shall be provided inside a GI junction box (150x150x100mm), located adjacent to the M-Bus loop. Terminations shall be made with approved connectors. The power shall be supplied from the Lighting/Small Power DB, protected by a separate single-phase 300mA ELCB and a single-pole C6 MCB. The junction box shall have two 25mm knockouts on each side, top, and bottom, and must be labelled DEWA W AMI with the respective feeding source, as shown in Reference Drawing.

D. M-BUS CABLE INSTALLATION STANDARD

1. The M-Bus cable (2x18AWG, screened, polypropylene insulated, FRNC/LSZH sheath, approved brand) shall be pulled continuously from the main water meter chamber to the junction box in the LV room without intermediate joints. Terminations at both ends shall be made inside junction boxes using standard splicing connectors.

2. The M-Bus communication cable shall be fixed securely along the water pipeline using nylon cable ties, up to the PVC junction box installed inside the meter chamber.

3. Proper glanding with PVC PG-7 glands shall be provided at the PVC junction box. The M-Bus cable shall be connected to the loop cable using approved splicing connectors inside the junction box.

4. Cables within both junction boxes shall be neatly dressed, with ferrules clearly visible for identification.

5. At both ends of the loop cable, a PVC ferrule sleeve label shall be provided inside the junction box. Example: if the LV room is on the ground floor, the label shall read JB Main Meter – JB LV Room FG.

6. The loop cable shall be routed through any pulling junction boxes (if applicable), properly labelled as above, and extended into the LV room junction box with a minimum 3m spare coil for future extensions. The LV room junction box shall bear a PVC engraved label: DEWA W AMI.

7. The junction box inside the meter chamber shall remain watertight and be labelled with a PVC engraved plate marked DEWA W AMI.

8. Continuity and insulation resistance (IR) tests shall be carried out on each loop cable before terminating to meters or other devices.

9. All materials used (M-Bus cable, splicing connectors, terminal blocks, junction boxes) shall be approved by DEWA prior to installation. Preferred materials include:

10. M-Bus cable: 2x18AWG, screened, polypropylene insulated, FRNC/LSZH sheath.

11. Terminal Blocks/Splicing connectors: Wago or equivalent, subject to DEWA approval.

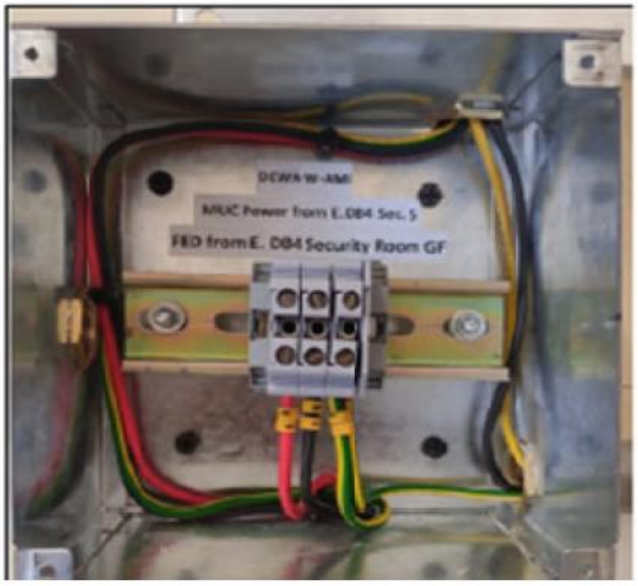
12. As-built schematic drawings of the complete cabling and terminations, clearly showing physical routing and junction box locations, shall be prepared and submitted for final acceptance. Reference schematic formats are provided in Section E.

13. As-built containment drawings, including exact GIS coordinates of cable routes (from main chamber to boundary wall, risers, and horizontal containment routes), shall be prepared and submitted for DEWA GIS database update.

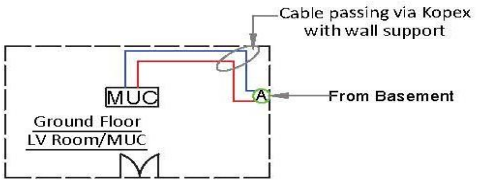
14. A framed copy of the approved as-built drawings shall be mounted in the LV room for reference.

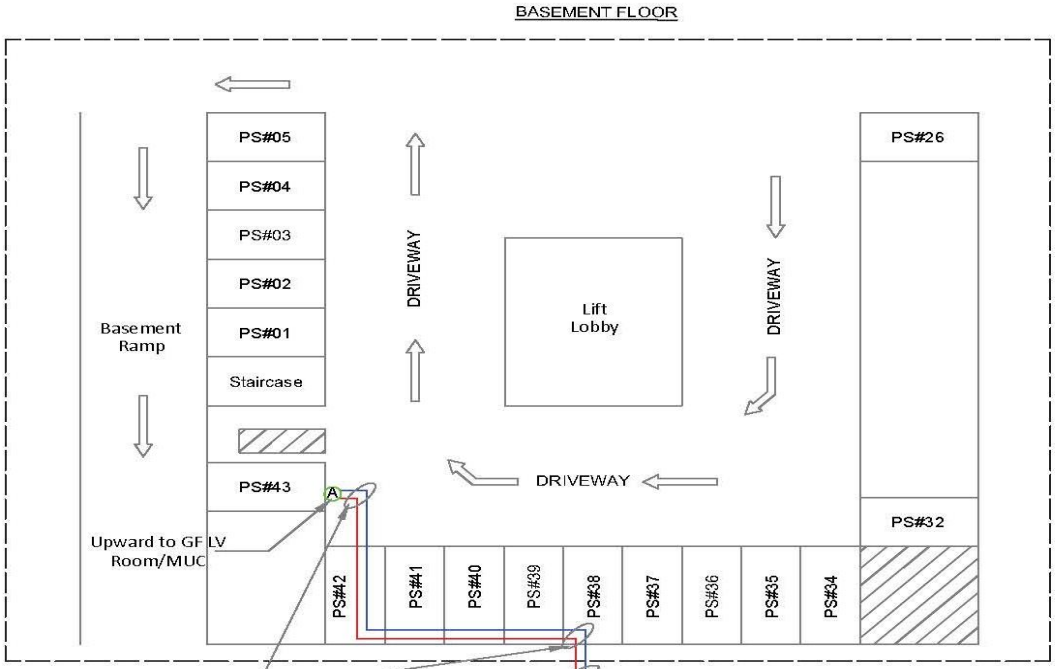
All the above requirements are mandatory. Developers/Contractors must ensure strict compliance before submitting an application for a new connection.

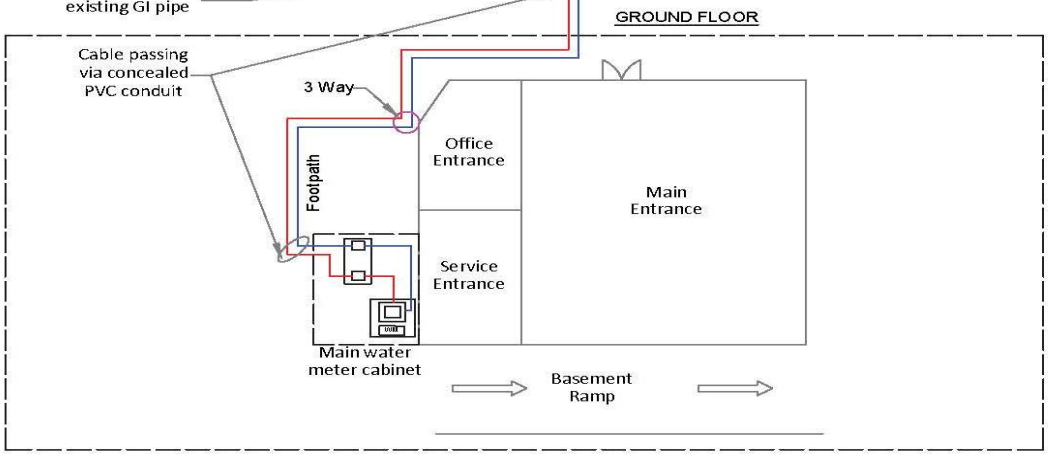
E. TYPICAL PICTURE REFERENCES



F. TYPICAL M-BUS CABLE SCHEMATIC DRAWING







LEGENDS:

	WATER METER
	BELDEN (MBUS) CABLE
	JUNCTION BOX
	WAGO SPLICING CONNECTOR
PS No.	PARKING SLOT No.

CUSTOMER: Dubai Electricity & Water Authority (DEWA)	**DRAWING REFERENCE NO:** FW/DEWA/BM/ 1069	**SHEET No. :** 1/1
PROJECT:	**FERRULING/TAGGING PHILOSOPHY**	
CONTRACTOR NAME:	**ITEMS TO BE LABELLED**	**FERRULE/TAG**
SUBSTATION NO: SS015027	MAIN WATER METER CHAMBER JUNCTION BOX	DEWA-W.AMI
AREA/ SITE: xxxx-Area Latitude: 25.xxxxxx Longitude: 55.xxxxxx	CABLE END IN MAIN WATER METER CHAMBER JUNCTION BOX	MAIN WATER METER-LVROOM MUC1
BUILDING NAME: A		
MAIN WATER METER NO:	CABLE END IN LVROOM MUC	LVROOM MUC1-MAIN WATER METER
DRAWING TITLE: Schematic Drawing	PVC COATED GI FLEXIBLE	DEWA-W.AMI
	PVC PIPE	DEWA-W.AMI

POINT-A
POINT-B
POINT-C
ABOVE PARKING C-10
ELECTRICAL LEGEND
SYMBOLS
DESCRIPTION
MAIN WATER METER CHAMBER
PULL BOX
150x150mm PVC PULL BOX
13A SINGLE SWITCHED SOCKET OUTLET
Ø25mm PVC CONDUIT
Ø25mm GI CONDUIT