

Water & Civil Division

Water AMI (Advanced Metering Infrastructure) Project

GUIDELINES FOR BULK WATER METER INSTALLATION

GRE CONNECTION

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Dubai Electricity & Water Authority

**GUIDELINES FOR BULK WATER METER INSTALLATION-GRE
CONNECTION**

Rev-5

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GUIDELINES FOR BULK WATER METER INSTALLATION

Water meters of 50 mm diameter and above sizes (GRE Connection) shall be installed horizontally inside meter chambers in strict accordance with the standard installation drawing **PEW-STD-AMI-004.Rev5**.

A. BULK WATER METER INSTALLATION STANDARD

1. Bulk water meters (≥ 50 mm) shall not be installed in basements, pump rooms, meter rooms, upper floors, or building rooftops under any circumstances.
2. The meter installation location and access area shall remain free from obstructions such as barriers, plants, signboards, and gardens, and shall maintain a minimum clearance of 2 m from electrical sources.
3. The approved installation guidelines shall be strictly adhered to during installation.
4. The meter shall be protected against falling or impact damage during handling and installation.
5. Installation shall follow the flow direction arrows embossed on the meter body.
6. The register shall be positioned for clear visibility and accessible reading from outside the chamber.
7. Pipes, valves, and fittings shall be of high-quality, heavy-duty, non-toxic, and non-corrosive materials. All flanges, bolts, and nuts shall be stainless steel 316L.
8. The meter shall remain completely filled with water to prevent air passage. A 90° upward bend shall be installed after the meter to connect with the consumer pipeline.
9. Adequate concrete supports shall be provided for valves, strainers, pipes, and fittings inside the chamber to prevent displacement. The meter body, strainer, and flanges shall not be encased in concrete.
10. Standing, stepping, or applying load on the meter during installation, reading, or maintenance is strictly prohibited.
11. All connections shall be pressure-tested for leakage after installation.
12. The meter shall not be repositioned after bolts have been fully tightened.
13. The pipeline shall be flushed thoroughly before installation of the meter.
14. A strainer shall be installed downstream of the meter to prevent debris from entering the consumer pipeline and storage tanks.
15. The consumer pipeline shall connect directly from the meter to a single main storage tank. All auxiliary storage tanks, including fire tanks, shall be interconnected from this main tank.
16. The consumer pipeline immediately downstream of the water meter 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
17. Full-bore isolation valves shall be provided upstream and downstream of the meter for maintenance purposes.

18. Consumers shall provide a separate isolation valve outside the chamber on their pipeline for local shutoff during maintenance.
19. A non-return valve (NRV) shall be installed on the consumer pipeline, outside the chamber, to prevent reverse flow from the storage tank into DEWA's water network.
20. The NRV shall be high-quality, heavy-duty, non-toxic, and corrosion-resistant, preferably stainless steel 316L.
21. Installation of booster pumps upstream or downstream of the meter is strictly prohibited. Violations shall attract penalties as per governing regulations.
22. Consumers may install water pumps after the storage tank if required.
23. The construction of the meter chamber and cover shall be completed prior to meter installation to avoid equipment damage.
24. Shop drawings detailing meter installation and chamber layout shall be submitted to DEWA for approval prior to execution.

B. GUIDELINES FOR BULK WATER METER CHAMBERS

1. Water meters shall be installed in dedicated chambers (not buried) with adequate dimensions for installation, maintenance, and removal.
2. Chambers shall be precast HDPE or reinforced concrete, watertight, rigid, level, obstacle-free, and equipped with a sump pit for drainage.
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 located away from electrical cables, overhead power lines, magnetic fields, and vibrating machinery.
5. Chambers shall be constructed outside the boundary wall of the premises and remain accessible 24/7.
6. A non-corrosive GRE/HDPE ladder shall be permanently installed in chambers exceeding 1 m depth to provide safe access.
7. Ladders shall be placed away from the meter, ensuring sufficient clearance for installation, maintenance, and meter handling.
8. Chambers shall be protected against sand burial, rainwater ingress, flooding, and vehicular loads, with suitable barricading where required.
9. The meter body, strainer, flanges, and valves shall not be encased in concrete during chamber construction.
10. Bolts shall face the meter/valve side, with nuts positioned on the wall/concrete side to facilitate tightening and removal.
11. Chamber covers shall permit wireless/radio signal transmission for meter communication and therefore shall be fabricated from GRP material.

12. For meters of 200 mm diameter and above, the inlet valve and pipe before the meter shall be directly buried, while the meter, strainer, outlet valve, and fittings shall be installed inside the chamber. A 150 mm dia. ductile iron cover shall be provided for the buried inlet valve.
13. Chamber covers shall be permanently embossed with the DEWA logo and the inscription “Water Meter” in Arabic and English.
14. A stainless steel identification plate engraved with “DEWA Water Meter Chamber”, the Legacy Account Number, and Plot Number shall be securely affixed to the chamber’s top slab.
15. The chamber dimensions specified in the table below shall be strictly adhered to for the construction of the meter chamber, ensuring adequate space to accommodate the water meter and all associated fittings in accordance with the typical installation drawings (PEW-STD-AMI-004.Rev5).

METER CHAMBER DIMENSION

WATER METER SIZE	INLET VALVE (L)	METER (L)	STRAINER (L)	OUTLET VALVE (L)	SPIGOT FLANGE ADAPTOR (L) F	CLEARANCE BETWEEN SOCKET AND CHAMBER WALLS (L) G	TOTAL LENGTH	CLEARANCE AT BOTH SIDES OF METER IN WIDTH FROM CHAMBER WALLS	METER WIDTH	TOTAL WIDTH	CHAMBER DIMENSION	CHAMBER COVER DIMENSION
A	B	C	D	E	(INLET + OUTLET SIDE)	(INLET + OUTLET SIDE)	(B+C+D+E+F+G)	(200+200)	H	I	(Minimum)	(Minimum)
50	178	200	300	178	—	250+250(500)	1356	400	110	510	1400X700	900X600
80	203	200	350	203	—	250+300(550)	1506	400	140	540	1600X700	900X600
100	229	250	350	229	260+260(520)	150+150(300)	1878	400	165	565	2000X700	900X600
150	267	300	500	267	270+270(540)	150+150(300)	2174	400	220	620	2200X700	1100X600
200	292	350	500	292	260+260(520)	150+150(300)	2254	400	280	680	2400X700	1100X600
300	330	500	500	330	260+260(520)	200+200(400)	2580	400	375	775	2600X800	1100X600

ALL UNITS ARE IN MM

16. DEWA shall be responsible for the supply and installation of water meters, strainers, and valves for all new connections. Installation shall be carried out either directly by DEWA staff or by contractors duly authorized by DEWA. Customers and property developers shall be responsible for the supply and installation of all ancillary fittings and downstream pipework after the meter, including the connection of the supply line from the meter to their internal piping and/or storage tank, in full compliance with the relevant DEWA specifications and standard drawings.

17. The permissible meter sizes, the corresponding minimum and maximum downstream pipe sizes required for installation, the daily flow capacity of each meter size, and the minimum storage tank capacity required for different types of premises are detailed in the table below.

METER SIZE, METER CAPACITY AND STORAGE TANK REQUIREMENTS				
Meter Size (mm)	Meter Capacity/ Quantity of Water the Meter can Deliver in 24 Hours (m³/day)	Pipe Size to be Connected Between the Meter and Storage Tank. (mm)	Storage Tank Requirement for Standard Residential Premises	Storage Tank Requirement for Labor Accommodation and other High Consumption Premises
50	102-203	50	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption
80	203-521	80	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption
100	521-814	100	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption
150	814-1829	150	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption
200	1829- 3255	200	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption
300	3255- 7324	300	Equivalent to 24 Hours Consumption	Equivalent to 48 Hours Consumption

C. M-BUS CABLE CONTAINMENT INSTALLATION STANDARD

1. A 25 mm diameter heavy-duty conduit shall be laid between the water meter chamber and the LV room for the M-Bus communication cable. No conduit joints shall be permitted inside the meter chamber, except for couplings/adapters required to connect the PVC junction box.
2. The conduit shall be CPVC with a minimum wall thickness of 2.8 mm, laid underground in a sand bed or concealed within concrete/blockwork from the chamber up to the retaining wall. Once inside the building, the conduit shall transition to GI type and be routed exposed along walls or ceilings leading to the LV room. Concealment within walls or slabs inside the building shall not be permitted.
3. A 75 mm diameter HDPE protective sleeve shall be provided from the water meter chamber to the retaining/boundary wall to safeguard the above conduit. Where the water meter chamber is located more than 20 m from the plot boundary or where the route requires directional changes, pull pits of internal dimension 300 x 300 x 300 mm shall be constructed at intervals of 25 m or at every change in direction. Each pull pit shall be

fitted with a ductile iron cover conforming to BS-EN124 C250, embossed with “DEWA–W-AMI,” and sealed watertight using a GRP sealing plate, as shown in Reference Picture

4. Inside the building, the conduit shall be GI, surface-mounted, and fitted with two-way junction boxes at every 25 m length and at each change of direction. The GI conduit shall not be concealed.
5. A PVC junction box, dimension 100 x 100 x 50 mm with IP68 rating, shall be installed inside the meter chamber and connected to the 25 mm conduit using proper couplings/adapters. Each junction box shall be fitted with a PVC PG-7 gland at the bottom.
6. A GI junction box, dimension 150 x 150 x 100 mm with IP56 rating, shall be installed inside the LV room at a suitable location, mounted on the wall at 1400 mm above the finished floor level, and connected to the GI conduit using proper couplings/adapters.
7. A single-phase 230V AC power supply (3C x 2.5 sq.mm power cable) from a normal power source shall be terminated inside a GI junction box (150 x 150 x 100 mm) fixed adjacent to the M-Bus loop. The junction box shall be fitted with suitable terminal connectors. The power supply shall be derived from the Lighting/Small Power DB via a separate single-phase 300 mA ELCB and a single-pole C6 MCB. The junction box shall be provided with two 25 mm knock-out holes on each face (top, bottom, and sides) and labeled “DEWA W AMI” along with the feeding source label, as illustrated in Reference Pictures

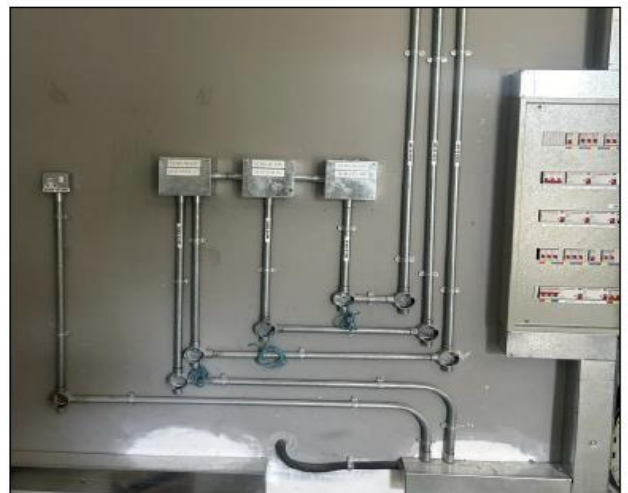
D. M-BUS CABLE INSTALLATION STANDARD

1. The M-bus cable, (2x18AWG, Screened, Polypropylene, FRNC/LSZH sheath any standard brand) shall be pulled from main water meter chamber to junction box located in the LV room without any cable joint. This looping cable shall be terminated inside Junction boxes located at both ends using splicing connectors.
2. The M-Bus cable (2 x 18 AWG, screened, polypropylene insulated, FRNC/LSZH sheathed, any standard brand) shall be pulled in a continuous length from the main water meter chamber to the LV room junction box, without intermediate joints. Looping cables shall be terminated at both ends inside junction boxes using approved splicing connectors.
3. The water meter communication cable (M-Bus cable) shall be securely fastened along the water pipeline using nylon cable ties and terminated at the PVC junction box installed inside the meter chamber.
4. The M-Bus cable shall be properly glanded into the PVC junction box using a PVC PG-7 gland and connected to the loop cable using approved splicing connectors within the junction box.
5. Cables inside all junction boxes shall be neatly routed and dressed to ensure ferrule labels are clearly visible at all times.

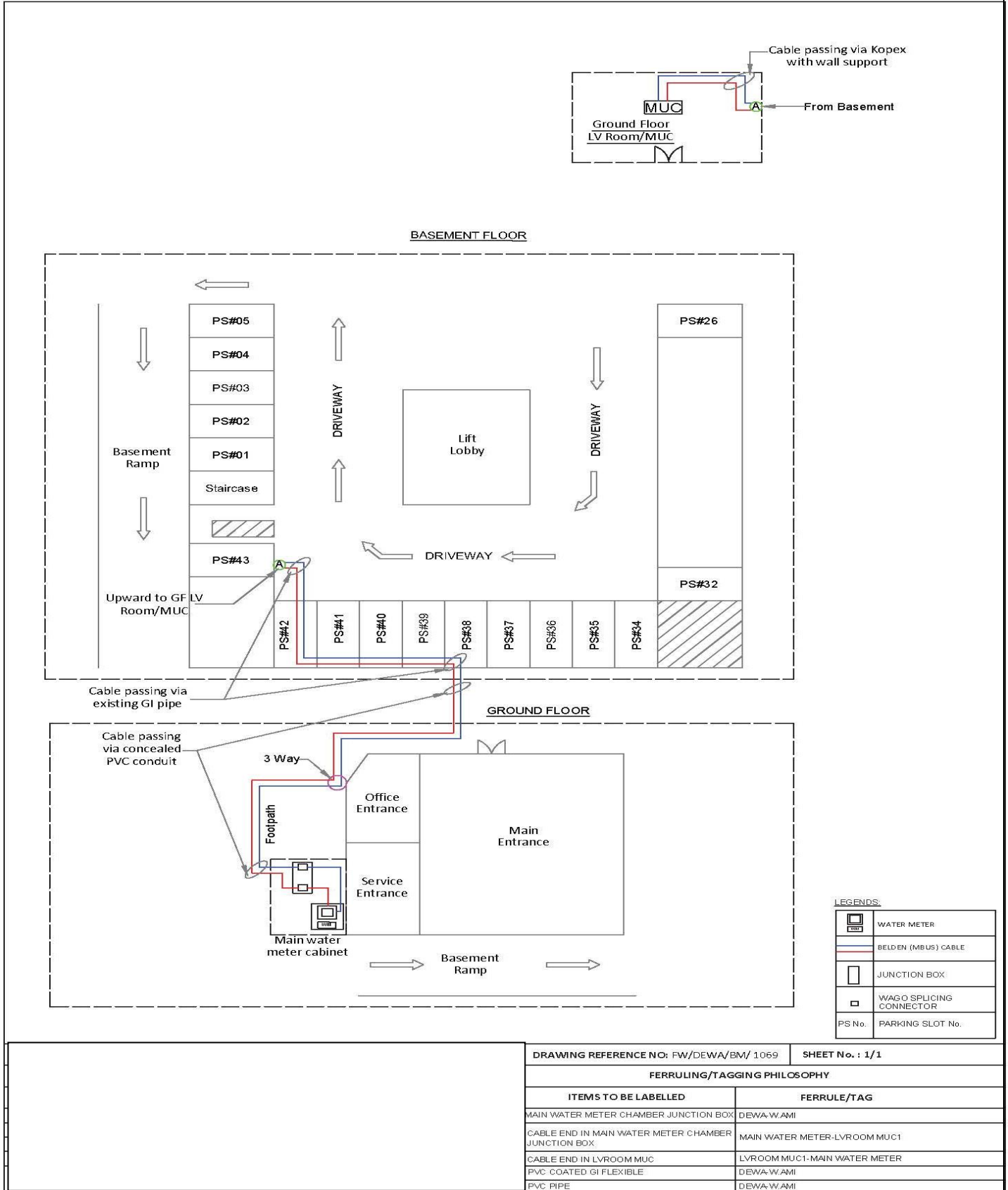
6. Appropriately sized PVC ferrule sleeve labels shall be provided at both ends of the loop cable inside the junction boxes. For example, if the LV room is located on the ground floor, the cable shall be labeled as “JB Main Meter – JB LV Room FG.”
7. The loop cable shall be routed through all intermediate pulling junction boxes (if provided) and labeled as specified above, along its entire route to the LV room junction box. Each loop cable shall be extended into the LV room with a minimum of 3 meters of spare length, neatly coiled for future extension. The LV room junction box shall be provided with an engraved PVC label reading “DEWA W AMI.”
8. The junction box inside the meter chamber shall be securely closed to maintain its waterproofing integrity and provided with an engraved PVC label marked “DEWA W AMI.”
9. Continuity tests and insulation resistance (IR) tests shall be performed on each loop cable prior to termination at the water meters and associated devices.
10. All materials used for the works shall be subject to DEWA Engineer approval prior to installation. The preferred M-Bus cable shall be 2 x 18 AWG, screened, polypropylene insulated, FRNC/LSZH sheathed, any standard brand. Terminal blocks/splicing connectors shall be of WAGO make or equivalent, subject to DEWA approval.
11. As-built schematic drawings of the complete cabling system, including terminations, physical routes, and junction box locations, shall be prepared and submitted for final acceptance. A sample schematic drawing is provided in Section E, “M-Bus Cable Schematic Sample Drawings.”
12. As-built containment drawings shall also be prepared, including exact GIS coordinates of the cable route from the main meter chamber to the retaining/boundary wall, risers, and any horizontal containment runs for sub-meters and main meters, other than typical risers, for DEWA GIS update.
13. A copy of all as-built drawings shall be framed and mounted in the LV room for reference.

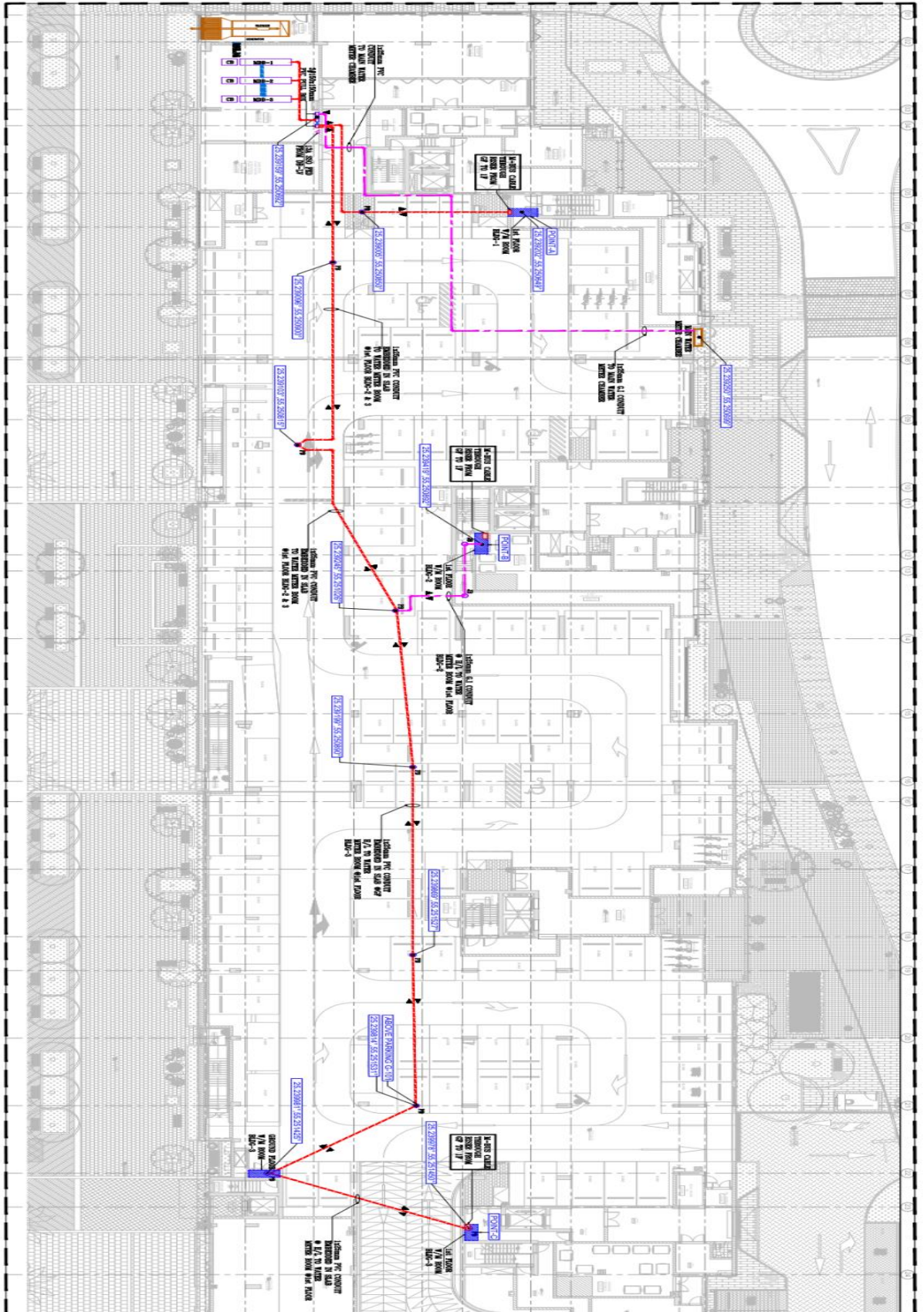
.All the above requirements shall be strictly complied with by developers/contractors prior to submitting any application for a new connection.

E. TYPICAL PICTURE REFERENCES



F. TYPICAL M-BUS CABLE SCHEMATIC DRAWING





SYMBOLS	DESCRIPTION
[Symbol]	MAIN WIRE WITH CHANGE
[Symbol]	FIELD BOX
[Symbol]	3x35mm PVC FULL BOX
[Symbol]	1x4 SINGLE BRANCHING SOCKET OUTLET
[Symbol]	425mm PVC CONDUIT
[Symbol]	425mm G.I. CONDUIT

Reference Drawing: PEW-STD-AMI-004.Rev5
