

CHAPTER 7


ELECTRIC VEHICLE CHARGING

FACILITIES

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7.1 Smart Power EV Charging Solution (SPECS)

1. To help reduce carbon emissions, improve roadside air quality and support Hong Kong's development into a low-carbon and smart city, HK Electric has been promoting the use of EVs. On top of providing the public with free EV charging service, HK Electric also renders a one-stop free SPECS service to assist customers in implementing EV charging solutions. Detailed scope of services, useful information about EV charging solution and HK Electric EV Charging Stations are provided at HK Electric website (www.hkelectric.com/EV-en). 

2. Customers may submit an Online Service Request Form available at the above website requesting our free SPECS service. For enquiry, customers may contact HK Electric at 2510 2701 or EV@hkelectric.com. Please refer to Drg. No. GCS/7/01 for the workflow for implementing EV charging solution.

7.2 Requirements for Electric Vehicle (EV) Charging Facilities

1. General Arrangement
 - a. EV charging facilities are fixed electrical installations and shall comply with the relevant requirements of the Electricity Ordinance (Cap. 406) and its subsidiary regulations.
 - b. Electrical work on EV charging facilities including design, installation, commissioning, inspection, testing, maintenance, modification and repair shall be carried out by registered electrical contractors and registered electrical workers of the appropriate grade.
 - c. All EV charging facilities which are connected to, or intended to be connected to HK Electric supply of electricity must comply with HK Electric Supply Rules, the latest edition of Code of Practice for the Electricity (Wiring) Regulations and other relevant Government Ordinances and Regulations.

- d. The electrical installations shall comply with the “Technical Guidelines on Charging Facilities for Electric Vehicles” and “Technical Guidelines for Electric Vehicle (EV) Charging-enabling for Car Parks of New Building Developments” published by the Electrical and Mechanical Services Department and Environment Bureau/Electrical and Mechanical Services Department respectively.
- e. EV charging facilities shall be supplied and metered appropriately as per HK Electric requirements.
- f. The Tariff Meter Communication (TMC) Infrastructure provisions shall be made by customers during the design and construction stage. The proposed arrangements of facilities for TMC infrastructure provisions should be submitted to HK Electric for consideration during the design stage. For details, please refer to Drg. No. GCS/5/24.
- g. Electrical loads of EV charging facilities should be evenly distributed among the three phases as reasonably practicable.
- h. Fault Protection
 - i. Except for circuits using the protective measure of electrical separation, each charging point shall be protected by its own RCD of at least Type A, having the characteristic specified in Code 11J of the latest edition of Code of Practice for the Electricity (Wiring) Regulations.
 - ii. Each charging point incorporating a socket outlet or connector complying with the IEC 62196 series, protective measures against DC fault current shall be taken, except where provided by the EV charging equipment. The appropriate measures, for each connection point, shall be as follows:
 - RCD Type B; or
 - RCD Type A and appropriate equipment that provides disconnection of the supply in case of DC fault current above 6 mA.

- i. Electric cable of each final circuit shall be selected based on the design current of the EV charging facilities and taking into account the constraint of voltage drop in the circuit in accordance with the relevant requirements of the latest Code of Practice for the Electricity (Wiring) Regulations. A larger size electric cable may be used to facilitate future upgrade. In connection with this, a conductor size suitable for carrying a minimum rated current of 32 A is recommended.
 - j. Means of preventing unauthorized usage of EV charging facilities such as housing the socket outlet in a padlocked box or using an access card for energizing charging facilities may be provided as necessary.
2. Metering Arrangement
- a. Tariff metering equipment is important to HK Electric and customers in the determination of electricity consumption. Tariff meters shall be installed in a clean and dry indoor location which is not exposed to weather, mechanical damage, vibrations, extremes of temperature or dampness etc. They shall be under conditions which are suitable for meter installation, reading and maintenance. The meter position shall be readily accessible from communal area at all times in accordance with Chapter 5 – Metering Requirements.
 - b. Supply to EV charging facilities shall normally be derived from the electric supply equipment installed on the same floor level. HK Electric meters for individual parking spaces shall be installed inside a communal meter room at each car park level.
 - c. If a meter room is not available, a group of meters may be installed inside a meter cubicle/enclosure subject to the following conditions:
 - i. A meter cubicle/enclosure shall be installed at a suitable location within the car park area with prior agreement from HK Electric. Typical arrangement of meter cubicle/enclosure can be referred to Drg. No. GCS/7/02.

- ii. The following diagrams shall be posted at the front over of the meter cubicle/enclosure of the corresponding supply zone:
 - Layout drawing showing the location and carpark number for each parking space with EV charging facilities
 - LV schematic diagram

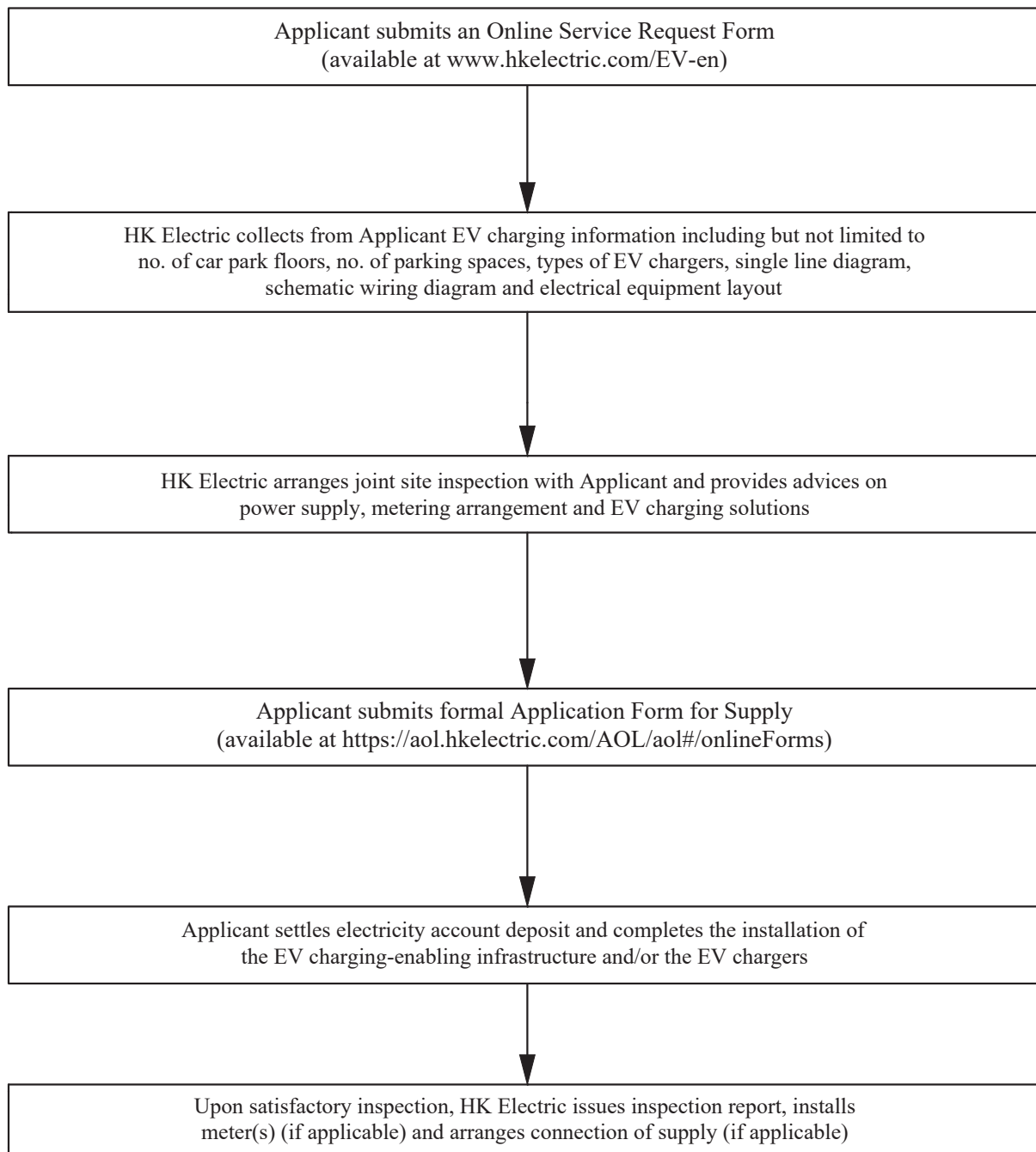
Example of the above diagrams can be referred to Drg No. GCS/7/03.

- iii. Safety poles with yellow/black marking or tape shall be erected at least 1,000 mm in front of the meter cubicle/enclosure in order to provide clear delineation of working boundary. Safety poles shall be located in coordination with the meter cubicle/enclosure, so it would allow easy access for working personnel. Typical arrangement of safety pole can be referred to Drg. No. GCS/7/04.
- d. HK Electric meter shall be electrically connected at a position immediately after the customer main switch and the metering point of an installation shall be at a position as close to the origin of the supply source as practicable.
- e. Meter position shall satisfy the requirements for meter reading, meter fixing and meter maintenance. For details, please refer to Drg. No. GCS/5/14, GCS/5/17 and GCS/5/18.
- f. A meter may be applied for each parking space with EV charging facilities (Refer to Drg. No. GCS/7/05).
- g. A single meter may also be applied for several parking spaces with EV charging facilities (Refer to Drg. No. GCS/7/06).
- h. HK Electric may allow customers to install their check meters/timers for recovering electricity consumption charges for EV charging via metered communal installations (Refer to Drg. No. GCS/7/07). This is restricted for EV charging installations only and customers are required to obtain prior approval of HK Electric by submitting a standard form (Form EV1). The recovery of electricity consumption charges for non-EV charging installations is not allowed.

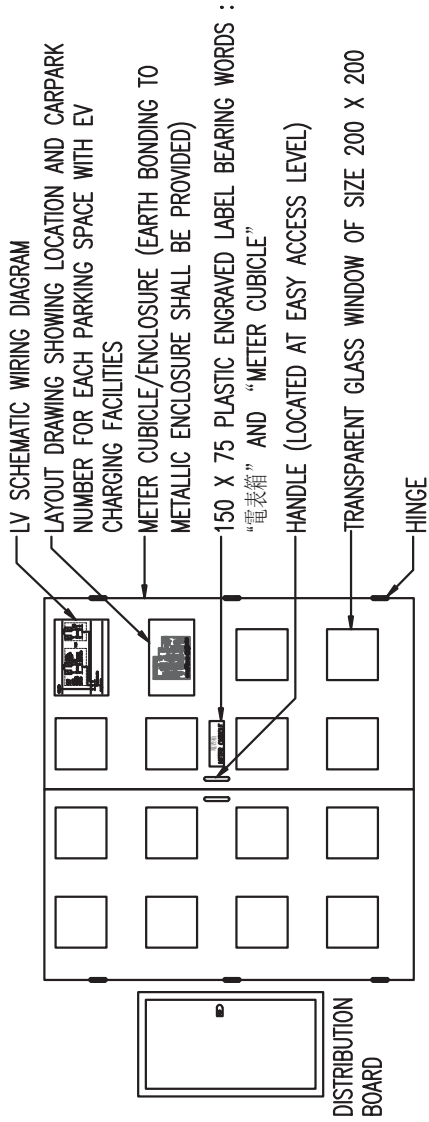
7.3 Schedule of Drawings – Electric Vehicle Charging Facilities

<u>Drawing No.</u>	<u>Drawing Title</u>
GCS/7/01	Workflow for Implementing EV Charging Solution
GCS/7/02	Typical Arrangement of Meter Cubicle/Enclosure
GCS/7/03	Example of Layout Drawing Showing the Location and Carpark Number for Each Parking Space with EV Charging Facilities and LV Schematic Diagram
GCS/7/04	Typical Arrangement of Safety Pole
GCS/7/05	Metering Arrangement of a Meter for Each Parking Space with EV Charging Facilities
GCS/7/06	Metering Arrangement of a Single Meter for Several Parking Spaces with EV Charging Facilities
GCS/7/07	Arrangement of Installing Check Meters/Timers by Customers for Recovering Electricity Consumption Charges for EV Charging via Metered Communal Installations

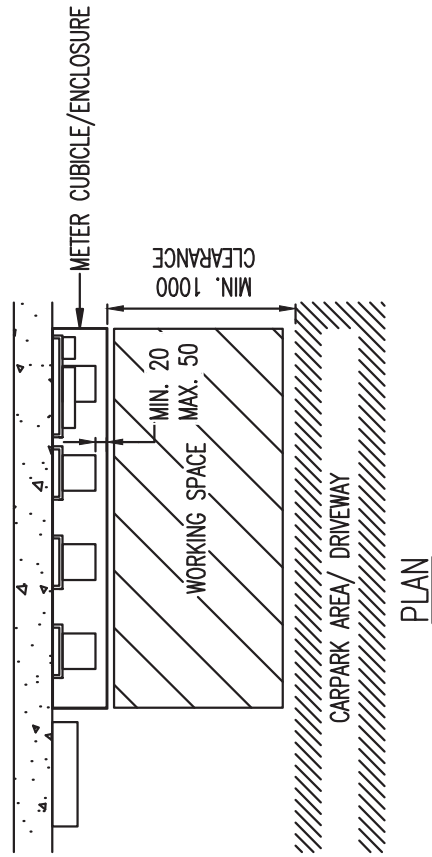
For application and enquiry for implementing EV charging solution, please call
Smart Power EV Charging Solution hotline **2510 2701** or email to **EV@hkelectric.com**



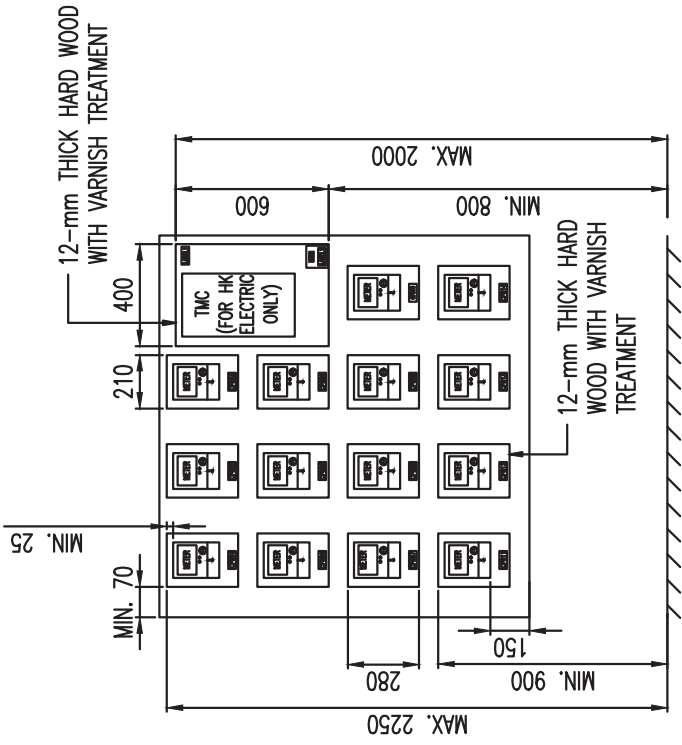
Drg. No. GCS/7/01
WORKFLOW FOR IMPLEMENTING EV CHARGING SOLUTION



FRONT VIEW



PLAN



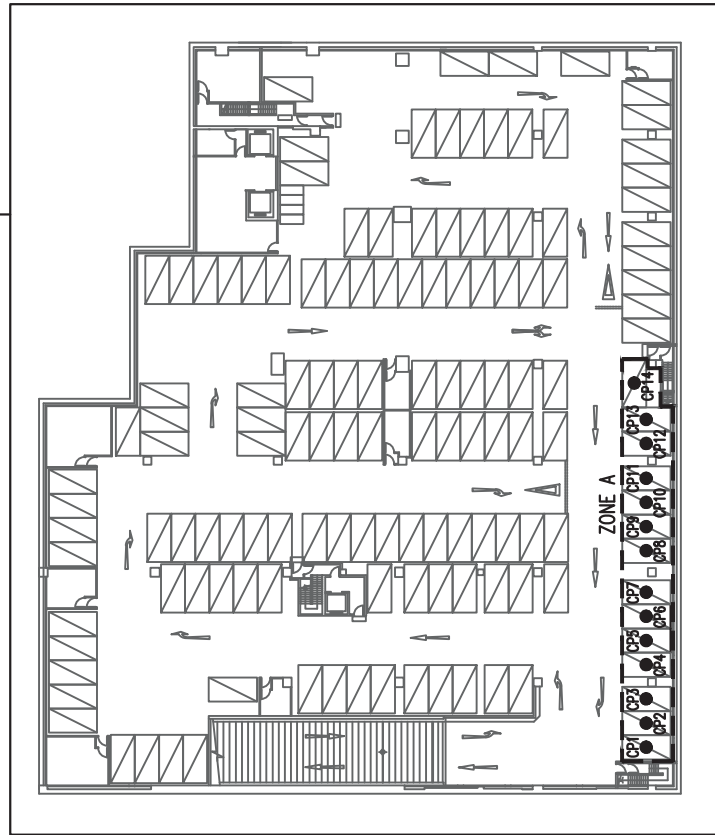
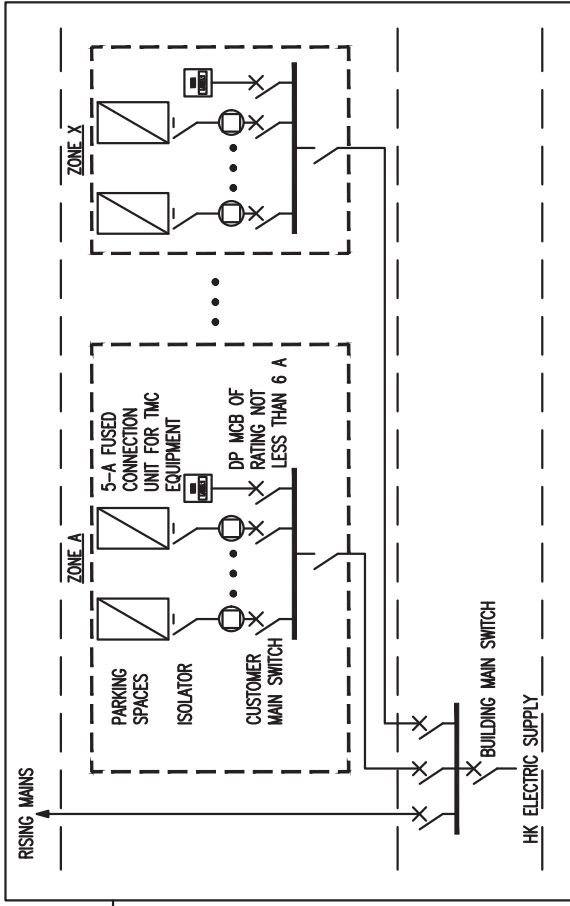
INSIDE FRONT VIEW

LEGEND	DESCRIPTION:
	5-A FUSED CONNECTION UNIT WITH EARTHING TERMINAL
	ADDRESS LABEL (120 X 60)

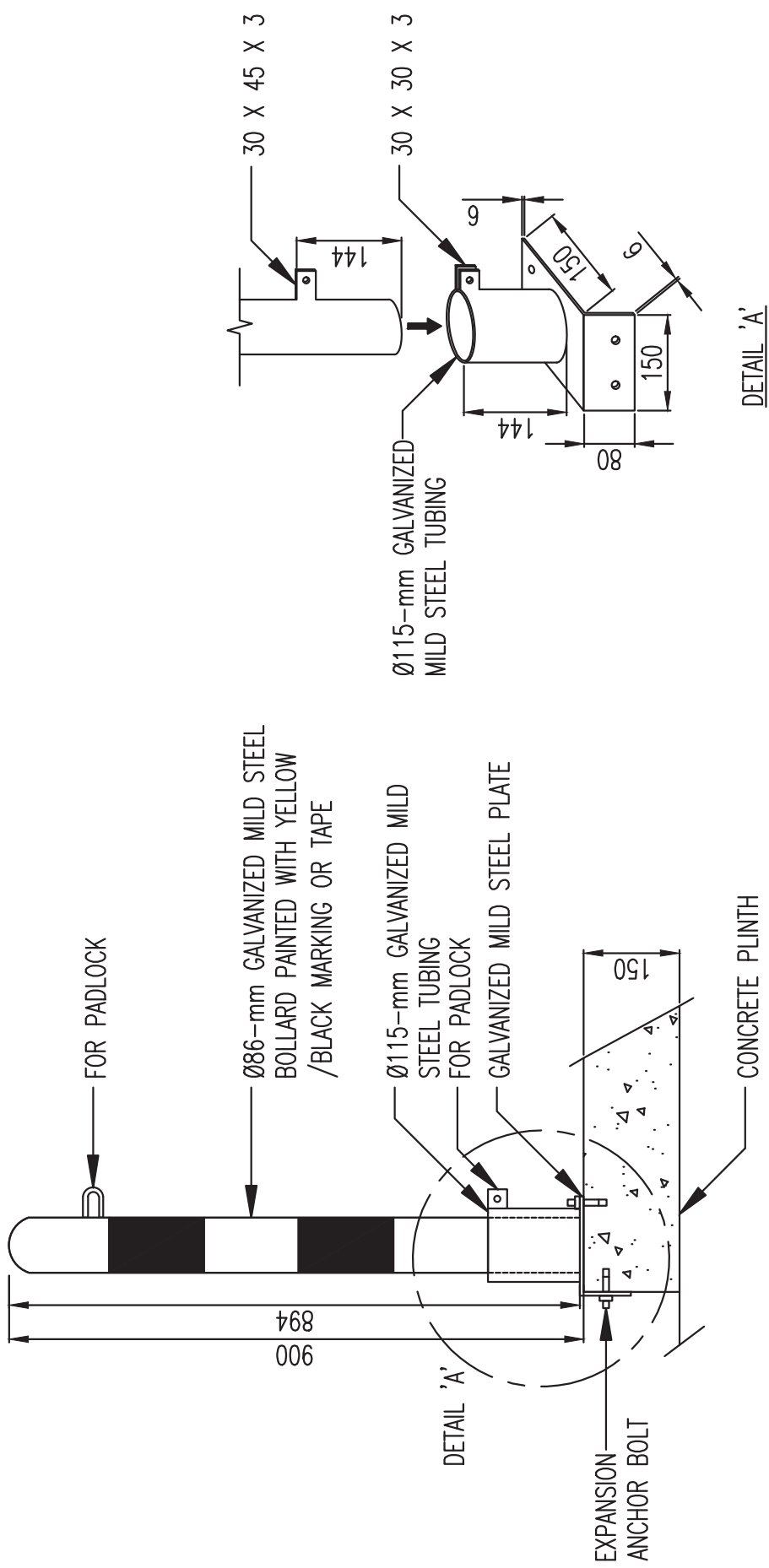
NOTE : ALL DIMENSIONS ARE IN mm.

Drg. No. GCS/7/02

TYPICAL ARRANGEMENT OF METER CUBICLE/ENCLOSURE

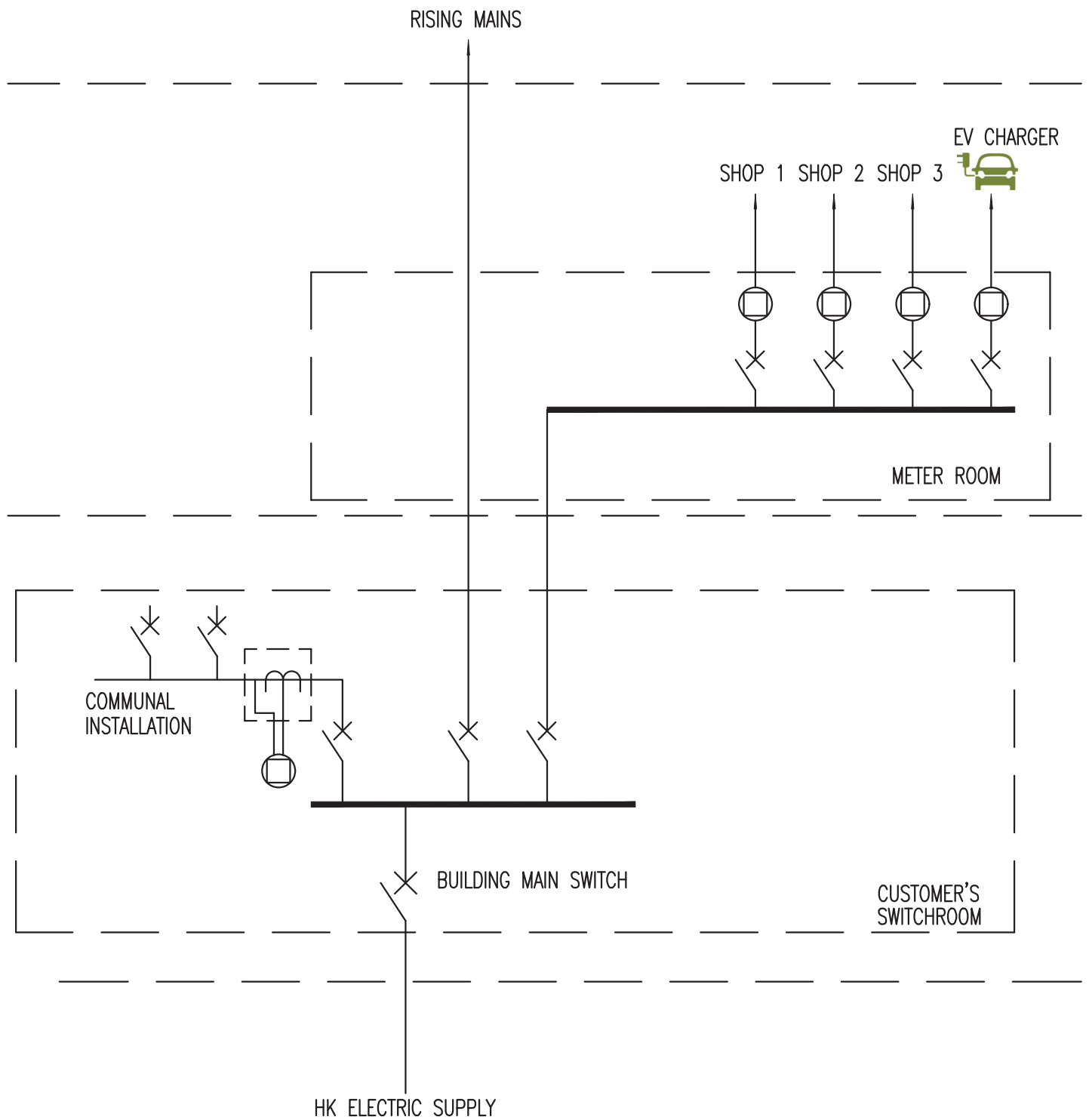


Drg. No. GCS/7/03
EXAMPLE OF LAYOUT DRAWING SHOWING THE LOCATION AND CARPARK
NUMBER FOR EACH PARKING SPACE WITH EV CHARGING FACILITIES
AND LV SCHEMATIC DIAGRAM



NOTE : ALL DIMENSIONS ARE IN mm.

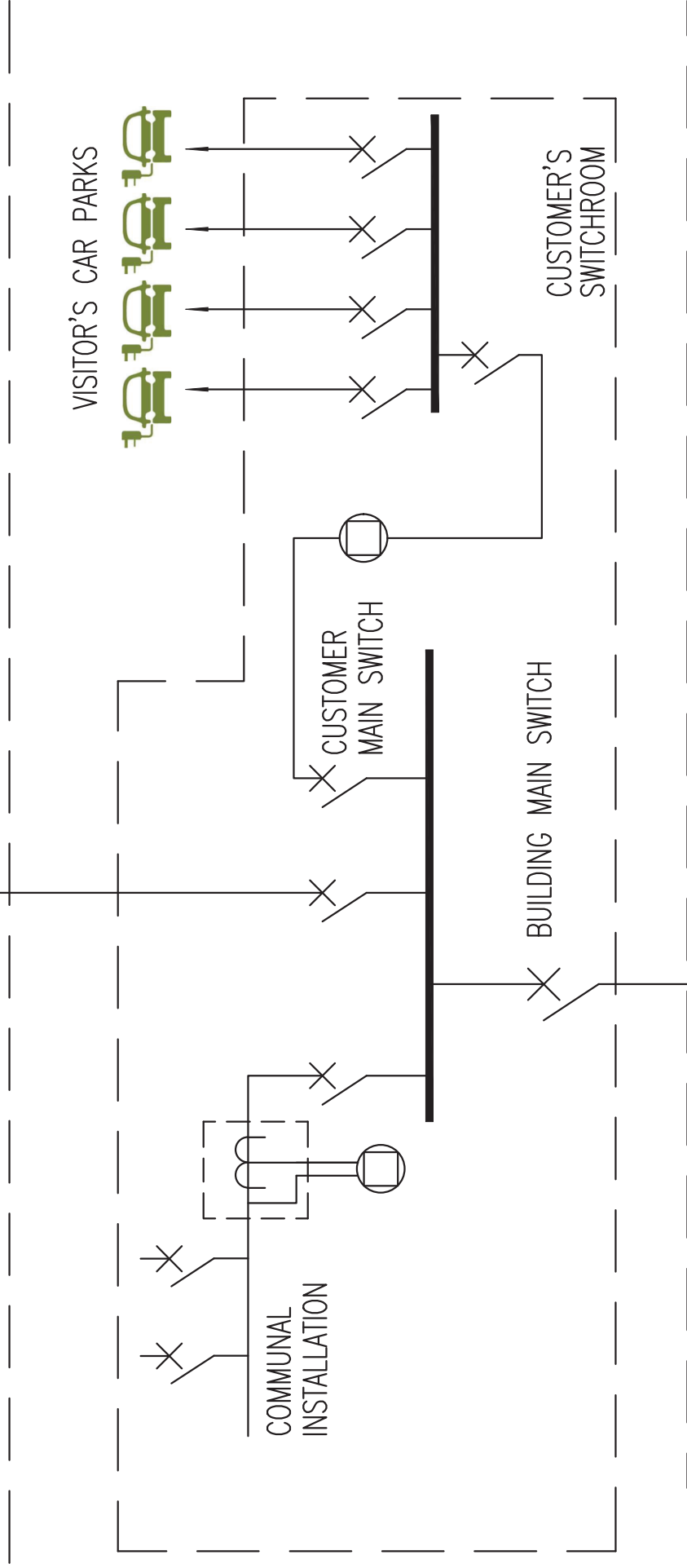
Drg. No. GCS/7/04
TYPICAL ARRANGEMENT OF SAFETY POLE



Drg. No. GCS/7/05

METERING ARRANGEMENT OF A METER FOR EACH PARKING SPACE WITH EV CHARGING FACILITIES

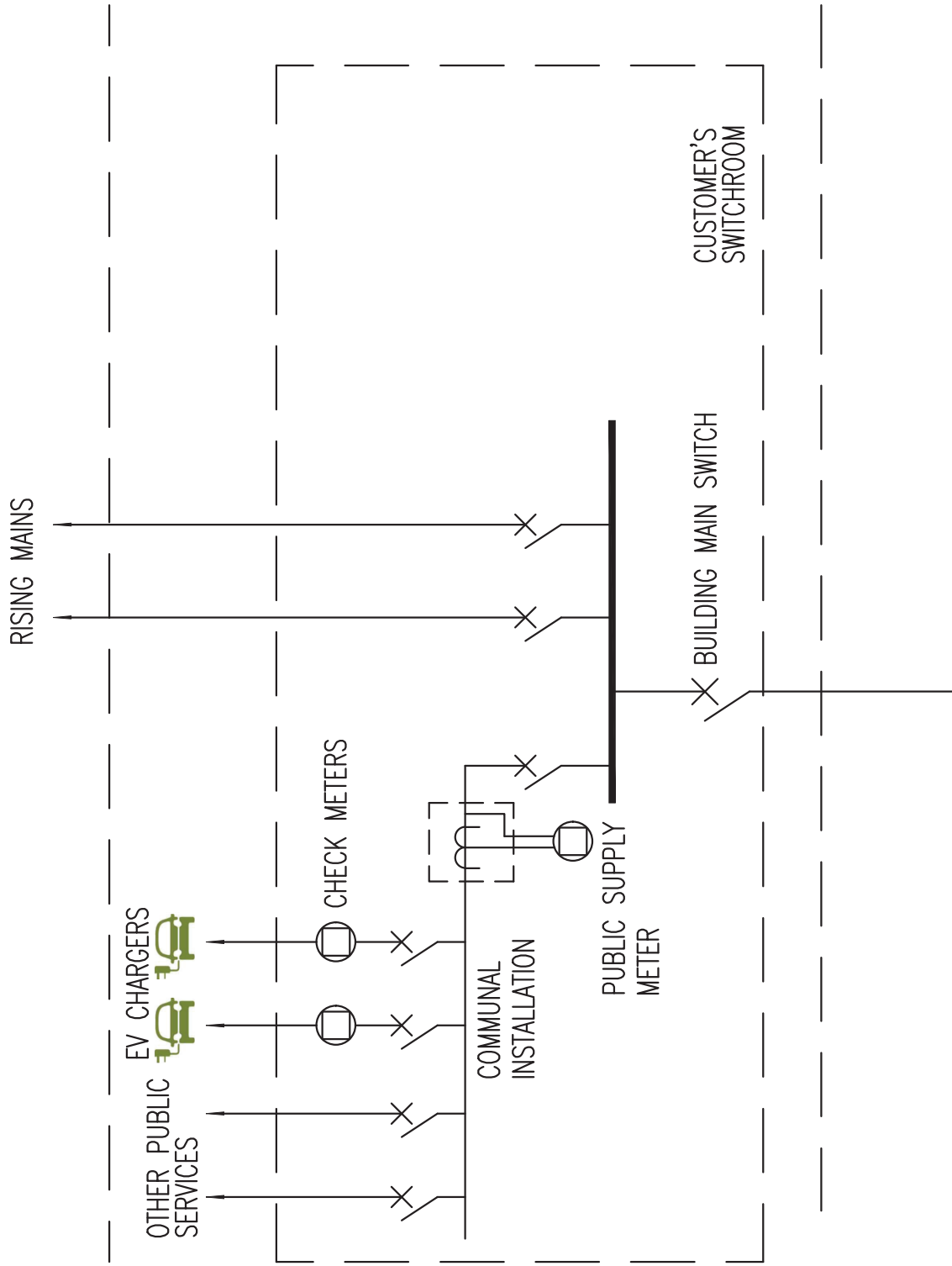
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RISING MAINS



HK ELECTRIC SUPPLY

Drg. No. GCS/7/06

METERING ARRANGEMENT OF A SINGLE METER FOR SEVERAL
PARKING SPACES WITH EV CHARGING FACILITIES



HK ELECTRIC SUPPLY

Drg. No. GCS/7/07

**ARRANGEMENT OF INSTALLING CHECK METERS / TIMERS BY CUSTOMERS
FOR RECOVERING ELECTRICITY CONSUMPTION CHARGES FOR EV CHARGING
VIA METERED COMMUNAL INSTALLATIONS**