KAHRAMAA
كهرماء
المؤسسة العامة القطرية للكهرباء والماء
Qatar General Electricity & Water Corporation

# ED-EDM-P1/G1

# Guidelines for Excavation works in the Vicinity of MV/LV Cables

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# Document Control

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| ED | Guidelines | Guidelines for Excavation works in Vicinity of MV/LV Cables |
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# Issue Record

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## 1. Purpose

This document is intended to provide guidelines* to third party contractors performing jobs in the vicinity of the KM cable network (charged/laying stage).

**This document is issued, as a guide, to explain the procedures the Third party Contractors shall follow at the site when working in the vicinity of MV/LV cables. Third party Contractor to submit specific Method statement to work in vicinity of existing MV/LV cables wherever required based on the field conditions. The consultant of the contractor to review and approve such Method statement.*

## 2. Scope

This guideline is applicable to all third party contractors applying for Service Information Sheet to work in the vicinity of MV/LV Cables:

## 3. Responsibilities & Authorities

Responsibilities and authorities for ensuring that these guidelines are;

- Manager, Electricity Distribution Department
- Head of Electricity Distribution Maintenance Section
- Sr. Engineer (Cable Unit)
- Cable Engineer
- Third party contractor**

If the responsible personnel listed here above are absent, their responsibilities shall be designated to other relevant staff.

** *It is the responsibility of the Contractors carrying out the Excavation works in vicinity of MV /LV Cables to follow the Rules & Regulations, Procedures and Instructions of KM to avoid damage to the KM installations.* In case of any situation at site demands additional steps to be implemented other than what mentioned in this guideline, contractor has to inform the Authorized KM personnel and proceed as per the direction given by them. *In the event of damage to MV/LV installations, the Contractor **is not** absolved from his responsibilities.*

# 4. Abbreviations, Definitions of Terms & Key References

## Abbreviations

| | | | | | |
|---|---|---|---|---|---|
| KM | : | Kahramaa | LOA | : | Limitation of Access |
| CKT | : | Medium Voltage Circuit | MV | : | Medium Voltage |
| ENA | : | Electricity Network Affairs | LV | : | Low Voltage |
| EDD | : | Electricity Distribution Department | CLU | : | Cable Unit |
| EDP | : | Electricity Distribution Planning | S/B | : | Stand by Office |
| EDM | : | Electricity Distribution Maintenance | S/S | : | Substation |
| CIEC | : | Circuit Isolation and Earthing Certificate. | RO | : | Road Opening |
| SIS | : | Service Information Sheet | SCE | : | System Control Engineer |
| GIS | : | Geographical Information System | | | |

| Term | Description |
|---|---|
| **Third party Contractor** | A person with a formal contract to do a specific job (other than those works approved by KM) |
| **Site** | The place where a structure or group of structures is, was, or is to be located. |
| **Applicant** | Contractor / Consultant who applies for a job to be provided |
| **Limitation of Access** | A form signed and issued by an Authorized Person to a Competent person in charge of work other than work on HV apparatus defining the limit of the area within which the work is to be carried out. |
| **Road Opening (RO)** | Road Opening application/permit on-line forms are related to the parties (Municipality, KM-Water, Ministry of Interior – Traffic Dep., ASHGHAL – Drainage Affairs, QTEL and QP) which utilities can be affected by the works being done in a particular job:<br>- RO1 is an application<br>- RO2 is an approval with or without conditions<br>- RO3 is a permit to work by Ministry of Interior – Traffic Department<br>- RO4 is a permit to excavate, expose (up to 10m) and repair the cable in case of emergency |

## Key References

1. System Operation Memorandum 'Distribution' – Issue 2 dt 14/08/2017
2. KM Safety Manual and Safety Rules Second Edition – 2014
3. Procedure for Work in the Vicinity of the MV and LV Cables – ED-EDM-P1
4. ISO 9000:2015 QMS Fundamentals and Vocabulary
5. ISO 9001:2015 Quality Management Systems

# 5. Guideline

## Planning

Third party Contractor/ Consultant to compare/superimpose the work drawings/scheme drawings on the updated KM record drawings and confirm the locations where the proposed excavation works may come in vicinity of existing MV/LV cables.

### 5.1. Site Investigation

- Site investigation starts only after SIS is approved.
- Competent Person (Site engineer or Foreman) of Contractor will mark the cable locations on site according to the 'Record Drawings' issued by Kahramaa against RO2.
- The existence of Cables shall be established by using a **'Cable Avoidance tool/ Cable Detector.**

### 5.2. Trial Pits

- Open adequate number of Trial Pits in the concerned area to determine the precise location of Cables.
- All excavations shall be done by using hand tools and the excavations shall be limited down to the level of cable protective tiles only.
- Removal of cable tiles is not allowed.
- Prepare a site drawing based on trial pit location and the elevation level of cable tiles.
- Excavation may be commenced in the area where it is confirmed that the cables do not exist.

### 5.3. Excavation in the vicinity of Existing MV and LV cables:

- A trench of required width shall be made by manual excavation across Cable reservation (50cm clearance from both side) up to the Top of Cable Protective Tiles.
- Excavate and extend the cable trench such that the cable tiles can be removed without damage and also to provide a firm support to the **plywood base**.
- Carefully remove the Protective Tiles and store them properly to avoid damage. (If any of the tiles are damaged they shall be replaced by the Contractor at his cost)
- Remove the dune sand bedding surrounding the cables.

### 5.4. Protecting Cables

- The cables to be uniformly supported with wooden box all along the exposed length.
- First temporarily hang the cables by steel / Nylon rope supported by steel pipe placed over the ground and a plywood sheet (Marine grade, six ply, 12 mm thickness) under the cables. (Cables should not be directly hanged to Ropes without uniform all along the length support from under the cables. Ropes can be tied to the support only)
- Establish the two vertical sides over the plywood in the form of an open box.
- Fill dune sand inside the wooden box and cover the cable completely.
- Provide a lid over the wooden box and strengthen the box adequately with ropes. (attached drawing for guide)
- High level of care shall be considered during the supporting process to avoid any scratch or minor damages to the cables.

### 5.5. Materials and Tools Check List:

The following items shall be available at the site as a minimum

i. Steel/ Nylon ropes
ii. Marine Plywood 1 mm Thick
iii. Wooden Planks.
iv. Tie rods
v. Scaffolding Jacks and props
vi. Danger Signage

### 5.6. Second Stage of Excavation

- After the completion of the supporting system, the Kahramaa Inspector/ Authorized KM representative may check wherever necessary the condition of the support and the compliance with the agreed procedure.
- If the Cables cannot be supported, further excavation should not be commenced and KM Engineer to be reported for further needful action.
- One qualified Contractor supervisor shall available full Time during the supporting and excavation works alone with one G.S.M mobile for any emergency case.

### 5.7. Backfilling of Trench:

- After the completion of the service crossing, the Backfilling work will be followed up to the bottom of the support Box level.
- The Box then will be removed along with the other supporting sections.
- 10cm of Dune sand shall be provided around the MV / LV cable.
- The MV cable Protection Tiles shall be fixed back / Caution tape shall be laid for LV cables above the cable in Proper way before starting the backfilling activity.
- Kahramaa Inspector / Authorized KM representative may inspect the site wherever necessary and give clearance to proceed with the next stage of work.
- The Backfilling activity shall be in layers of 100 mm with approved selected loose soil by KM.

### 5.8. Clearing the site:

After the completion of the whole activities, cleaning around the excavated area shall be done and any cable markers removed previously shall be returned back in the same position.

### 5.9. Responsibilities at site:

- It is the responsibility of the Third Party Contractor should ensure the availability of safety officer and Competent Engineer having knowledge of safety to be present at the site all the time during the work execution in vicinity of Cables.
- It is the responsibility of the consultant of the contractor to ensure that the contractor is following the approved Method statement, Guidelines and additional remarks by Kahramaa at all the time.

## 6. Key Performance Indicators

Process KPIs are covered under PQ-PQS-P1 Corporate Strategic Planning Procedure.

## 7. Records

| Records | Custodian | Record Location | Information Sensitivity | Retention Time |
|---|---|---|---|---|
| Contractor should have Valid RO Permit and updated KM record Drawings | Contractor | Contractor Site office | Public | 1 year |
| System Information Sheet **ED-EDM-P1 /F1** | Contractor | Contractor Site office | Public | 1 year |