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SERIES L: CONSTRUCTION, INSTALLATION AND
PROTECTION OF CABLES AND OTHER ELEMENTS OF
OUTSIDE PLANT

Methods for inspecting and repairing underground plastic ducts

Recommendation ITU-T L.73

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Methods for inspecting and repairing underground plastic ducts

Summary

After a conduit is installed in a trench and has been backfilled, but before any surface construction begins, it is common practice to check duct quality because certain plastic conduits can become oval-shaped, pierced or broken. Recommendation ITU-T L.73 describes inspection methods such as the use of test mandrels and closed-circuit television (CCTV) systems to check duct quality, and also describes various methods that are utilized to repair underground conduits. Repairing methods without digging, called "trenchless techniques" are introduced, and traditional repairing methods (dig and replace) is also presented. Additionally, guidelines for selecting appropriate repairing methods are proposed. It is expected that this Recommendation will provide alternative solutions for inspection and repair work.

Source

Recommendation ITU-T L.73 was approved on 6 April 2008 by ITU-T Study Group 6 (2005-2008) under Recommendation ITU-T A.8 procedure.

Keywords

CCTV, inspection, mandrel, repair, trenchless techniques, underground duct.

FOREWORD

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CONTENTS

	Page
1 Scope	1
2 References.....	1
3 Definitions	2
4 Abbreviations and acronyms	2
5 Conventions	2
6 Methods for inspecting and repairing underground plastic ducts.....	2
6.1 Inspection methods for underground ducts	2
6.2 Repairing methods for underground ducts	4
Appendix I – Korean experience	9
I.1 Inspection methods	9
I.2 Repairing methods.....	12
Bibliography.....	13

Introduction

Placing cables in conduits is preferred because it has a principle advantage that the cable placement operation is separated in time from the actual conduit construction phase. The protection of the cable with the passage of time and the possibility of repeated access, cable removal and delayed cable installation make the method of placing cables in ducts more attractive. The method, however, has a disadvantage in that the initial cost of conduit construction is expensive. It is noted that underground ducts are prone to being deformed by the burden of earth pressure, which makes it necessary to check the ducts before cable installation, and to repair defective ducts before placing cables in conduits.

Recommendation ITU-T L.73

Methods for inspecting and repairing underground plastic ducts

1 Scope

This Recommendation:

- makes a classification of different methods for inspecting and repairing underground ducts;
- describes both trenchless methods and conventional methods;
- is limited to the methods for underground ducts in which no cables are installed;
- focuses on methods for underground ducts that have single-way duct unit systems and are made of plastic materials such as polyvinyl chloride (PVC) and polyethylene (PE);
- deals with pipes having diameters ranging from 90 to 110 mm.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T L.1] Recommendation ITU-T L.1 (1988), *Construction, installation and protection of telecommunication cables in public networks*.
- [ITU-T L.11] Recommendation ITU-T L.11 (1988), *Joint use of tunnels by pipelines and telecommunication cables, and the standardization of underground duct plans*.
- [ITU-T L.35] Recommendation ITU-T L.35 (1998), *Installation of optical fibre cables in the access network*.
- [ITU-T L.38] Recommendation ITU-T L.38 (1999), *Use of trenchless techniques for the construction of underground infrastructures for telecommunication cable installation*.
- [ITU-T L.39] Recommendation ITU-T L.39 (2000), *Investigation of the soil before using trenchless techniques*.
- [ITU-T L.40] Recommendation ITU-T L.40 (2000), *Optical fibre outside plant maintenance support, monitoring and testing system*.
- [ITU-T L.46] Recommendation ITU-T L.46 (2000), *Protection of telecommunication cables and plant from biological attack*.
- [ITU-T L.48] Recommendation ITU-T L.48 (2003), *Mini-trench installation technique*.
- [ITU-T L.63] Recommendation ITU-T L.63 (2004), *Safety procedures for outdoor installations*.

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