



Pipeline Design for Installation by Horizontal Directional Drilling

*Second
Edition*

Horizontal Directional Drilling
Design Guideline Task Committee

Edited by

Eric R. Skonberg, P.E.
Tennyson M. Muindi, P.E.

ASCE

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Prepared by
the Horizontal Directional Drilling Design Guideline Task Committee
of the Technical Committee on Trenchless Installation of Pipelines of
the Pipeline Division of the American Society of Civil Engineers

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CHAPTER 1

INTRODUCTION

1.1 SCOPE

This manual of practice addresses the design of major pipeline or duct segments to be installed by horizontal directional drilling (HDD). Generally speaking, major pipeline segments are greater than 500 ft in length and greater than 4 in. in diameter. They are installed by medium to large HDD drilling rigs (midi- to maxi-HDD drilling rigs). The design practices described in this manual are not generally applicable to small trenchless segments of pipe, duct, or cable installed by “mini-HDD” drilling rigs.

Horizontal directional drilling is a trenchless excavation method that is accomplished in three phases. The first phase consists of drilling a small-diameter pilot hole along a designed directional path. The second phase consists of enlarging the pilot hole to a diameter suitable for installation of the pipe. The third phase consists of pulling the pipe into the enlarged hole. Horizontal directional drilling is accomplished using a specialized horizontal drilling rig with ancillary tools and equipment.

This manual has been prepared to serve as a guide for design engineers and preumes that the user has knowledge of the HDD installation process and pipeline design methods. Topics covered are limited to those related to HDD installation. Other sources of information and design methods should be consulted for guidance on designing the pipeline to satisfy service requirements. This manual is not a general design handbook for pipelines, and it is not meant to replace sound engineering judgment. Users of this manual should recognize that HDD installations are complicated civil engineering works and that only experienced professional engineers should undertake their design.