

Ditching

STD.8704

Scope

This standard provides Enterprise Products Company (Company) requirements for ditching for pipeline construction and installation. These requirements shall apply to ditching by Company forces or by other parties constructing to Company standards. Ditching shall comply with all applicable federal, state, and local regulations.

TABLE OF CONTENTS

1.0	CODES, SPECIFICATIONS AND STANDARDS.....	3
2.0	GENERAL	3
3.0	FOREIGN LINE AND UTILITY CROSSINGS	3
4.0	DITCH SPECIFICATIONS	4
5.0	DIKES, LEVEES AND FIREWALLS	5
6.0	SPOIL BANK	5
7.0	TEMPORARY BRIDGES	5
8.0	EXCAVATING NEAR IN-SERVICE PIPELINES	5
Attachment: Revision Log/Record.....		6

1.0 CODES, SPECIFICATIONS AND STANDARDS

1.1. Pipeline and Hazardous Materials Safety Administration (PHMSA)

49 CFR Part 192	Transportation of Natural and Other Gas by Pipeline
49 CFR Part 195	Transportation of Hazardous Liquids By Pipelines

1.2. Occupational Safety and Health Administration (OSHA)

29 CFR Part 1926	Subpart P - Excavation
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1.3. Enterprise Standards, Specifications, Manuals, and Drawings

O&M Manual	Section 3000 – Damage Prevention
Safety Policies Manual	3.4 - Excavation and Trenching
STD.0250	Project Records Management
STD.4508	Excavation, Support, and Backfill of Existing Pipelines
STD.4750	Encroachment Specification Evaluation
STD-CIDT-2601	Pipeline Trench and Backfill
STD-CIDT-2610	Typical Bell Hole Excavation – Multiple Bench for Existing Pipeline
STD-CIDT-2870	Right-Of-Way Topsoil Segregation Techniques
STD-CIDT-2872	Typical Trench Detail for New Pipeline Installation
STD-CIDT-2883	Drain Tile Repair Procedure

2.0 GENERAL

The Contractor shall employ OSHA approved equipment and methods required to keep the ditch in compliance with OSHA 29 CFR 1926 Subpart P, prior to personnel entering excavations or trenches. Contractor shall have a trained and certified "Competent Person" at each site, as per OSHA 29 CFR 1926. Daily excavation inspection reports will be prepared and maintained on site by Contractor's "Competent Person" and will be made available to Company personnel for review upon request.

3.0 FOREIGN LINE AND UTILITY CROSSINGS

- (1) When Company performs the preconstruction survey, Company will make every effort to locate all structures (aboveground or underground) during survey, and the locations of such structures identified by Company will be shown on the construction drawings. It is the responsibility of the Contractor to make regional "One Call" notification and to investigate and verify the existence and location of all structures whether or not they have been identified by Company. Excavation in the vicinity of existing structures shall be carefully done by hand, by hydro vacuum, or as required by owner/operator of existing structure. The Contractor shall be responsible for the protection of and for all damage to existing utilities, pipelines, and structures. Whether work is performed on time and material basis or lump sum contract, Contractor is responsible for all cost to repair damages to any structure.

- (2) A minimum clearance of 24 inches between pipe and foreign underground structure shall be maintained, unless otherwise authorized by Company Representative.

4.0 DITCH SPECIFICATIONS

4.1. Ditch Width and Depth

- (1) Unless otherwise stated on the drawings or right-of-way line list, the ditch shall be a minimum of 12 inches wider than the pipe being installed for pipe diameters less than 12 inches, and a minimum of 18 inches wider for pipe diameters 12 inches and greater. Pipe shall be installed at a depth no less than is listed on Company supplied construction line list and drawings, and depth shall be measured from the top of the pipe to the average level of the original or restored ground on the two sides of the ditch, whichever is lower.
- (2) Where specified in the Scope of Work or construction line list, Contractor shall be required to remove separately and conserve the topsoil (Double Ditch). Topsoil shall be removed to the depth specified in the Scope of Work or construction line list. Topsoil stripping will include the ditch line and backfill area. After the trench has been backfilled, Contractor shall replace the topsoil to the satisfaction of the Company Representative.

4.2. Consolidated Rock

When consolidated rock is encountered in such a way that the uppermost surface of consolidated rock exists at a higher elevation than the top of pipe, such conditions shall warrant as suitable protection against damage from external forces and justifies reduced cover as per Enterprise STD.4600.

4.3. Ditch Grading

The bottom of the ditch shall be cut to a uniform grade so that the full width of the ditch shall be available for providing slack in the line when installed.

4.4. Bend Excavations

At overbends and sidebends, the Contractor shall excavate the ditch to allow proper clearance between the inside bend of the pipe and the bottom or side of the ditch to maintain the minimum cover.

4.5. Rock

In all cases where rock or any boulder larger than two inches in diameter is encountered in the bottom of the ditch, the ditch shall be evenly padded with soil, sand or other padding material approved by Company in order to prevent the rock or boulders from coming into contact with the pipe coating.

4.6. Drainage Tile

Drain lines across the working side shall be cleaned out to ensure the tile has not been crushed or damaged by construction equipment. The Contractor shall construct the pipeline at such depth at the point of under crossing all drain tiles that no interference shall occur between the repaired section of tile and the pipeline. If drainage tile is damaged during the trenching operations, the locations shall be immediately flagged for repair. The flags shall not be removed until permanent repairs have been inspected and accepted by both the Company Representative and the landowner. Unless otherwise authorized in the line lists or by the Company Representative, temporary repairs shall be made and temporary supports shall be installed to maintain serviceability of the drain tiles until the permanent repairs can be made and the tiles properly supported by compacted backfill. Repairs shall be made by cutting tiles back into undamaged sections and replacing damaged sections with tile of equal size and quality, using care to maintain previous gradient.

5.0 DIKES, LEVEES, AND FIREWALLS

Unless approved by the Company Representative, all dikes, levees, and firewall crossed by pipeline ditch construction shall be bored or, where permitted by Company, installed above ground per project or permit specific requirements. If open cutting is approved, the Contractor shall install, maintain, reconstruct, and restore to prior construction condition, any temporary facilities necessary when cutting through existing dikes, levees, firewalls, or other control devices crossed by pipeline ditch construction.

6.0 SPOIL BANK

6.1. General

The spoil bank from the ditching operations shall not be placed on any loose debris or foreign matter that might become mixed during padding and backfilling operations.

6.2. Drainage

The Contractor shall provide and maintain gaps or openings in the spoil bank across cultivated fields, so that excessive rains do not cause water to back up and flood cultivated sections. Extreme care shall be exercised to keep all drain ditches and water courses open and useful.

7.0 TEMPORARY BRIDGES

When the ditch is excavated through lands where livestock/wildlife is confined, or through agricultural fields where the Company determines it is desirable for the landowner or tenant to have a passageway across the ditch, the Contractor shall plug the ditch or provide safe, temporary bridges for crossing the ditch, and leave an opening in the spoil bank. Where temporary bridges are installed, Contractor shall consult with a licensed engineer to ensure safety and design suitability of the temporary installation.

8.0 EXCAVATING NEAR IN-SERVICE PIPELINES

When ditching parallel to an existing pipeline, care should be taken to leave sufficient distance and support to ensure said line does not slough off into new excavation. If parallel line is a coupled pipeline, Contractor shall obtain a safe excavation procedure from the owner/operator of the coupled pipeline. In all instances, the work should be planned such that the excavation is open a minimum amount of time.

Attachment: Revision Log/Record

Revision 0.0		Publish Date: 24 Jun 11
Location of Change	Type of Change	Reason for Change
N/A	N/A	
Revision 1.0		Publish Date: 26 Jan 12
Location of Change	Type of Change	Reason for Change
Section 3.1(2)	Revision	Converted “may be required” to “shall be required”.
Revision 1.1		Publish Date: 12 Nov 15
Location of Change	Type of Change	Reason for Change
Section 1.0	Addition	Added references.
Section 3.0(1)	Revision	Replaced “preformed” with “performed”.
Section 3.0(2)	Deletion	Deleted “clearance” for redundancy.
Revision 2.0		Publish Date: 31 Jan 17
Location of Change	Type of Change	Reason for Change
Section 1.2	Addition	Added “O&M Manual – Section 3000 – Damage Prevention”.
Section 1.2	Addition	Added “STD.4750 – Encroachment Specification Evaluation”.
Section 2.0	Revision	Section revised for clarity.
Section 3.0(2)	Revision	Changed “12 in.” to “24 in.” Also reworded “or as required by Enterprise” to “unless otherwise authorized by Company Representative.”
Section 4.1(1)	Addition	Added phrases “not less than is” and “construction line list and...”
Section 4.1(2)	Addition	Added phrases “Where specified in the Scope of Work or construction line list,” and “or construction line list”.
Section 4.2	Revision	Reworded section for clarity.
Section 5.0	Addition	Added phrases “or where permitted by Company, installed above ground per project and permit specific requirements” and “and restore to prior construction condition”.
Section 5.0	Deletion	Deleted word “and” before “reconstruct”.

Section 7.0	Addition	Added sentence "Where temporary bridges are installed, Contractor shall consult with a licensed engineer to ensure safety and design suitability of the temporary installation."
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