

<b>4</b>	<b>UTILITY TRENCHES .....</b>	<b>2</b>
<b>4.1</b>	<b>GENERAL.....</b>	<b>2</b>
4.1.1	Scope .....	2
4.1.2	References .....	2
4.1.3	Excavation of Utility Trenches.....	2
4.1.4	Backfilling of Utility Trenches .....	2

ARAB ENGINEERING BUREAU

## 4 UTILITY TRENCHES

### 4.1 GENERAL

#### 4.1.1 Scope

- 1 This Part specifies the requirement for utility trenches. It does not include trenchworks for pipelines and service ducts.
- 2 Related Sections and Parts are as follows:

This Section

Part 2..... Filling

Part 3..... Excavation

#### 4.1.2 References

- 1 The following standards are referred to in this Part:

BS 1377 .....Methods of tests for soils for civil engineering purposes.

#### 4.1.3 Excavation of Utility Trenches

- 1 The trench to be excavated with the width and to the depth shown on the drawings or as indicated by the Engineer.
- 2 The sides of pits and trenches are to be vertical and adequately supported at all times. Excavation may if considered necessary be battered with a safe slope, but only with the Engineer's written permission.
- 3 Care is to be taken to excavate to the depths indicated. Where rock is encountered, the rock is to be excavated 150 mm lower than the required depth. Such depth in rock is to be backfilled with approved fill material and compacted as specified and/or as directed by the Engineer.
- 4 Excavated material will, if found unsuitable as defined in Part 3 of this Section, be disposed of to an approved tip and replaced with suitable material. All surplus material to be disposed of in accordance with Part 2 of this Section.

#### 4.1.4 Backfilling of Utility Trenches

- 1 After the utilities have been laid, the trench refilling is to commence with approved fill in compacted layers not exceeding 150 mm unconsolidated thickness. Each layer shall be well compacted by hand with iron rammers weighing not less than 5 kg, until the trench has been filled to a height of 300 mm above the top of the utility.
- 2 The remainder of the trench is then to be refilled in compacted layers not exceeding 250 mm unconsolidated thickness. Each layer being well compacted, with power rammers, vibrating plate compactors or other mechanical means of a type to be approved until the ground is thoroughly consolidated up to the required level for surface reinstatement. Each layer is to be compacted to 95% of its maximum dry density as determined by BS 1377.
- 3 Trenches are not to be backfilled until all required tests are performed on the utilities and until the Engineer has verified that the utilities have been installed in accordance with the Project Documentation.
- 4 Where cover to utilities is less than 400 mm, or where ordered by the Engineer, protection in the form of precast concrete tiles is to be provided according to an approved drawing or as ordered by the Engineer.

- 5      PVC warning tape shall be laid above the utility or the concrete tiles, after partial backfilling and approximately 300 mm below finished ground level.

**END OF PART**

ARAB ENGINEERING BUREAU