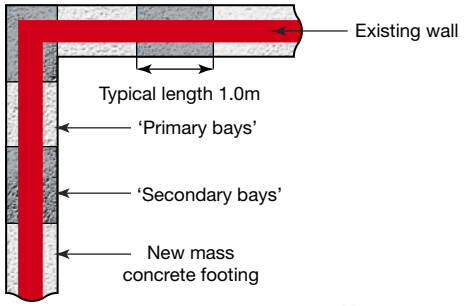
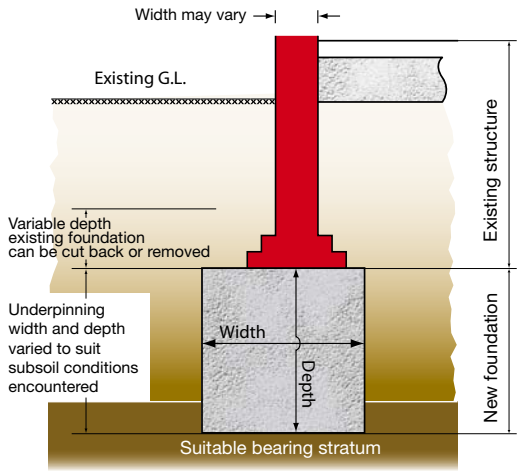
Traditional Underpinning
(Mass Concrete)



Plan of foundation

U1a

Preparation to a corner section of a basement



Section through foundation

Shear key to be formed between bays
Can be adapted to suit heave conditions

U1b

Federation of Piling Specialists

Deep Foundations Institute

Association of Specialist Underpinning Contractors and Engineered Foundations

Description

The stabilisation of an existing wall foundation by excavation below the foundation to a depth where suitable bearing strata exists. Replacement of the excavated material with mass or nominally reinforced concrete.

Can also be used to increase the height within existing low headroom basements, thus allowing conversion for living or utility room development.

Loading Capabilities

Loadings are based upon bearing strata.

Application

All types of shallow foundation stabilisation, or deep basement construction.

Installation Procedure

Excavation of unsuitable material and replacement with mass concrete executed in alternate bays to RB Supervising Of□cer's particular requirements. Generally 1.0 - 1.2m in length, 0.6m wide, depth up to and including 3.0m from ground level.

The interface with the new concrete can be:

a) Poured Direct (□ooded up).
b) Grouted and vented where necessary.
c) Dry Packed.

Advantages

a) Simple and easily understood engineering.
b) Low cost at shallow depth - less than 1.0m.
c) Work can be undertaken from one side of a wall - occupants may not necessarily need to be relocated.
d) Suitable for heavy foundation loads and massive structures.
e) System suited to supporting stone wall construction where deepening is required in competent soils.
f) Work can be carried out in areas of dif□cult and restricted access.
g) Especially suitable for the formation of cellars and basements beneath existing structures.