



# Pile & Beam



Federation of Piling Specialists



Deep Foundations Institute



Association of Specialist Underpinning Contractors and Engineered Foundations



## Description

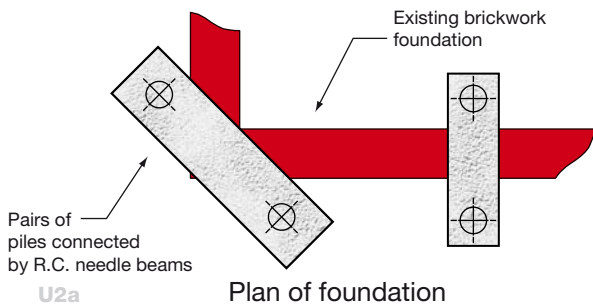
The stabilisation of an existing wall foundation by the use of RB mini-piles installed either side of the wall and connected through or below the structure with a reinforced concrete needle beam.

## Loading Capabilities

Loadings are based upon the bearing capacity of the underlying strata which will determine mini-pile type and size for this system. Very high foundation loads can be accommodated by reducing the span between needle beams:

General Guidelines for Mini-Pile Sizing		
90mm dia	SWL	Up to 40kN
105mm dia	SWL	40 - 60kN
150mm dia	SWL	60 - 100kN
200mm dia	SWL	90 - 120kN
220mm dia	SWL	120 - 200kN
250mm dia	SWL	150 - 250kN

*In certain ground conditions these loadings can be exceeded.*



## Application

The method is used where traditional or pier and beam underpinning systems are uneconomical.

## Installation Procedure

Install piles in pairs, either driven, drilled or augered, at longitudinal centres approximately 1.0m - 1.5m; lateral centres 1.0m - 1.2m; excavate, break out for and construct reinforced concrete needle beams.

## Advantages

- Because large excavations are not required, disruption and mess are kept to a minimum.
- System becomes cost effective when the depth of traditional underpinning exceeds 1.5m.
- Conservative design when pile centres do not exceed 1.0m.
- High load capability.
- Quicker when compared with dig-out systems.
- Suitable for restricted access.
- Needle beam can be constructed at high level if the foundation is deep.

