



## Europa Passage

Hamburg, Germany

**Contract Value (net):**

13.3 Mio EURO

**Construction Period:**

08/2003 – 12/2004

**Client:**

Allianz Immobilien GmbH, Stuttgart,  
GERMANY

**Services:**

Diaphragm Wall

Bored Piles

Micro Piles

Excavation

Value Engineering

**Contact:**

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As the leader of a joint venture, Bilfinger SE was awarded the contract to construct the basement of a complex urban mall building on an area of 12,000 m<sup>2</sup> comprising six underground floors for parking.

The building pit shoring consists of an 80 cm thick diaphragm wall reaching down to a depth of up to 42 m, the lower end of which is embedded into an impermeable soil layer.

The basement was made using the top-down method of construction. Prior to soil excavation, steel bracing was installed at surface level to support the diaphragm walls. In a first step, excavation was performed down to a depth of four metres. At this level, the concrete floor slab for the first basement floor was cast. This floor slab as well as the floor slabs to follow beneath it serve to support the diaphragm walls. Each floor slab has openings to provide access for the excavation and concrete works for the next floor level beneath it.

After completion of the first concrete floor slab, another 3 m of soil was excavated beneath the first slab and the second floor slab was cast. This procedure was repeated until the last floor level was reached at a depth of 21 m. Vertical support of the slabs was provided by steel columns which had been placed prior to the start of excavation in up to 45 m deep boreholes.

**Quantities:**

22,000 m<sup>2</sup> of Diaphragm Wall (0,80 m and 42 m deep)

105 Nos. Bored Piles (1.20 m and 45 m deep)

260 Nos. Micro Piles for Uplift Support (50 m deep)

210,000 m<sup>3</sup> Excavation

Value Engineering-Foundation